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## NUCLEAR DEVELOPMENTS

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13 GROUPS CHALLENGE FEDERAL NUCLEAR LIABILITY ACT

51200013 Ottawa THE OTTAWA CITIZEN in English 7 Aug 87 p C23

[Text]

TORONTO (CP) — If a nuclear disaster similar to Chernobyl happened in Canada, the nuclear industry would pay only a fraction of the cost of damage to people, homes and property because it is protected by federal law, documents filed in the Supreme Court of Ontario say.

In sworn affidavits filed with the court Thursday, the anti-nuclear group Energy Probe and 12 other plaintiffs launched a constitutional challenge to the federal Nuclear Liability Act, which ensures that the nuclear industry pays no more than \$75 million if there is an accident at a Canadian-built Candu nuclear reactor.

A major accident "would cause human health and property damage far in excess of \$75 million," said Ralph Torrie, an energy researcher and policy analyst.

He said large amounts of radioactive material and stored energy mean Candu reactors are not immune to catastrophic accidents.

Currently, 22 Candu nuclear reactors are operating or under construction in Ontario, Quebec and New Brunswick.

## SAFETY PROPOSALS FOR CANDU REACTORS REPORTEDLY RESISTED

51200014 Ottawa THE OTTAWA CITIZEN in English 20 Aug 87 p A12

[Text]

TORONTO (CP) — The Crown corporation that designs Candu nuclear reactors is resisting proposals by federal regulators to improve reactor safety and safety-related research, an unpublished document says.

The document, drafted by Atomic Energy of Canada Ltd., provides a glimpse of private negotiations between government regulators and the nuclear industry on reactor safety and licensing.

It shows that concerns about the safety of Candu reactor have been raised by officials at the Atomic Energy Control Board in Ottawa, the agency charged with watching over Canada's nuclear industry.

Reacting to continually evolving technical information and international developments since the Candu reactor was designed in the late 1960s, the board has expressed concern about what they say are several potentially serious safety issues with reactors now operating or under construction in Canada and other countries.

The document, titled Current Safety and Licensing issues and presented to a meeting of senior Ontario Hydro and Atomic Energy technical officials in February, shows the federal control board is

recommending the Canadian nuclear industry make 13 changes, including:

- Additional complex research into reactor behavior;
- Installation of extra safety equipment;
- Making minor but significant changes to reactor designs;
- And, changing some operating procedures.

The energy control board is also calling on the industry to make commitments of money and time that would have an impact on the financing of new nuclear power plants and on how fast they would be built, the document says.

It also shows that Atomic Energy is resisting many of the proposals, citing high costs, technical arguments and potential difficulties in selling and building future reactors.

"If we're going to survive as a commercial entity, we have to be careful not to increase the cost of our product without increasing the safety," Roger Humphries, an official with Atomic Energy's Candu design headquarters in nearby Mississauga, said when asked why the industry does not merely follow Ottawa's suggestions.

Changes in equipment or design could increase a power plant's

complexity, making it more difficult to analyze how it would behave during an accident, or even detracting from safety, he said.

If the board proposes "system after system after system, and we can demonstrate they don't provide a real increase in safety, then we will resist making a change," Humphries said.

However, Zygmund Domaratski, the board's head of reactor regulation, said in an interview that federal regulators are not making unreasonable demands.

He said board experts change their demands if the industry can produce convincing technical arguments, but he acknowledged the five-member control board, which has the final word, has also changed its mind in the past when the industry has pleaded that proposals would cost too much.

The federal regulators are proposing the installation of new equipment to prevent a buildup of hydrogen that they say could cause a fire at the Gentilly-2 reactor operated by Hydro-Quebec and the Point Lepreau reactor operated by New Brunswick Power Corp.

But AECL says the same end could be achieved by improving air circulation in the plant.

## MORE NUCLEAR POWER PLANTS PLANNED FOR NEXT DECADE

51500004 Hong Kong HONGKONG STANDARD in English 19 Aug 87 p 8

[Article by Chan Wai-fong]

[Text] DURING the coming three decades, China will be building nuclear power plants with an aggregate capacity of 30,000 Megawatts, a high-level mainland official revealed in Hong Kong yesterday.

In addition to the two power plants now under construction — one at Daya Bay and another Qin Shan — there are plans to build more nuclear plants in other parts of the country. But construction will only take place after 1990.

Speaking at a conference for the International Exhibition on Electricity Supply and Automation Equipment yesterday, Liu Chunsheng, Chairman of the Technical Commission of the Scientific and Technical Information Institute of the Ministry of Water Resources and Electric Power, said new nuclear plants had been contemplated in provinces where there were difficulties in coal transportation.

They include the coastal provinces of Guangdong, Zhejiang, southern Jiangsu, the northeast region, Fujian and Shandong, and also in the inland provinces of Hunan and Jiangxi.

The reactor at Daya Bay has a capacity of 900 Megawatts press-

urised water reactor (PWR) units while the one at Qin Shan in Zhejiang province has a capacity of 300 Megawatts.

Mr Liu said that several 900 or 1,200 MW PWR units would be imported.

However, "China's own capacity for making nuclear power equipment should also be developed and 300 and 600 MW PWR units will be produced," he added.

Moreover, to be in concert with the development of nuclear power, 17 pumped storage stations with a total capacity of 12,500 MW will be built along

the coastal regions.

Until early this year, China had a total installed capacity of 9,300 MW (including thermal and hydro electric power).

Mr Liu said that there was still a pressing electricity shortage of 1,500 MW in the country at large.

"The situation was similar last year. But it is anticipated that there will not be much improvement this year. We can only do it step by step," he said.

The shortage is mostly felt in large municipalities like Guangzhou, Shanghai, Beijing, and those in the Northeast. They are

mostly cities with large populations and a high degree of industrialisation.

It is estimated that the electric load density in Shanghai and Guangzhou will rise from the present 7.7 MW/km<sup>2</sup> and 6.6 MW/km<sup>2</sup> respectively to 20-25 MW/km<sup>2</sup>. In downtown areas, it

may even reach 50-60 MW/km<sup>2</sup>.

In order to solve the problem, more power plants are in the pipeline. But the construction of power plants and technical transformation require large funds.

Mr Liu said that loans amounting to US\$ 1.9 billion would have to be secured from commercial banks. Alongside with government funds, money is also being raised from local governments, enterprises, collectives and individuals.

The Ministry of Water Resources and Electric Power has issued power bonds amounting to three billion yuan (HK\$6.5 billion) this year.

Relevant reforms have also been introduced. The State Council has approved recommendations to float the prices of electricity; to reduce taxes, and to grant long-term low interest loans to power companies.

## HONG KONG REPORTAGE ON DAYA BAY NUCLEAR PROJECT

## Safety Panel Planned

51500003a Hong Kong HONGKONG STANDARD in English 8 Aug 87 p 1

[Article by Andy Ho]

**[Text]** SENIOR Chinese officials yesterday took a tentative step towards allaying local fears over the Daya Bay nuclear plant by speaking approvingly of a joint watchdog body.

The body, proposed by Hong Kong, would enable the territory to monitor directly the nuclear project.

Mr Jiang Xinyong, Chinese Minister of Nuclear Industry, yesterday said a Sino-Hong Kong advisory group, recognised by Beijing, would be set up before the plant came into operation in October 1992.

And the director of the State Council's nuclear steering committee, Mr Zhou Ping, said that, as the idea for the committee first came from Hong Kong, it was reasonable to allow representatives from the territory to sit on it.

The officials' statements were in sharp contrast to what Mr Zan Yunlong, general manager of the Daya Bay scheme, told reporters only three months ago.

Mr Zan had said there were "legal complications" in setting up a monitoring body with members from outside the country.

The proposal for a Sino-Hong Kong Daya Bay advisory group was first spelt out in a report from the Legislative Council's nuclear power fact-finding delegation last September.

The idea then was presented to Vice-Premier Li Peng, who oversees China's nuclear programmes, during the councillors' visit to Beijing.

Last January, the Hong Kong Government gave its support to the proposal when it quietly submitted a formal request for a joint panel through the local branch of the Xinhua news

agency.

No official reply has been received yet from the Beijing leadership.

But Mr Jiang's and Mr Zhou's statements were the most positive from China so far.

After officiating at a ceremony to mark the first pouring of concrete on the Daya Bay site, Mr Jiang quoted Vice-

Premier Li as saying China had accepted the proposal in principle.

"We are grateful to the Hong Kong compatriots for their concern about the project," he said.

"In future, through such a channel, we cannot only consult the Hong Kong people's views, but can also pass relevant information on the project on to

Hong Kong."

More studies on the composition of the proposed committee were needed, he said.

Mr Zhou, who is liaising with the United Nations' Atomic Energy Agency over international inspection of future Chinese nuclear power stations, held a similar view.

He said concerned departments in the capital were discussing the issue and the details on how to set up a joint advisory panel could be worked out later.

"We understand how the people of Hong Kong feel. We are equally concerned about the Hong Kong people as we are about the people in Guangdong," he said.

Mr Zhou, who is also a Vice-Minister of Nuclear Industry, added that experts could be invited to sit on the body.

But his superior, Mr Jiang, left room for possible manipulation of the advisory committee.

Towards the end of his brief statement, Mr Jiang said the committee might consist of either "mixed or homogeneous" membership.

Meanwhile, some Legco members were concerned the timing of the Sino-Hong Kong committee's creation could affect plans for a parallel panel in Hong Kong.



## Ceremony on Foundation

51500003b Hong Kong HONGKONG STANDARD in English 8 Aug 87 p 2

[Article by Andy Ho]

[Text]

CONSTRUCTION work on the Daya Bay nuclear power plant will soon be intensified following the ceremonial "pouring of concrete" for the foundation of the reactor complex yesterday.

Work on the structures which will house the future nuclear power generating units also began yesterday.

At the ceremony to mark the occasion, a senior executive of the Daya Bay joint venture company said the project was proceeding on schedule.

Mr Zan Yunlong, general manager of the Guangdong Nuclear Power Joint Venture Co (GNPJVC), said work on the project would reach a peak next year after his company submits all required safety analysis reports to the official Chinese nuclear safety body.

The Chinese National Nuclear Safety Administration is expected to approve the company's safety studies before January 7 next year.

When the reports are approved, the Daya Bay builders will be granted a full construction permit to proceed with all civil engineering work.

Mr Zan said latest estimates showed the project would cost US\$3.7 billion (about HK\$28.7 billion). The project was initially estimated to cost US\$3.68 billion.

The HCCM Nuclear Power Construction Joint Venture Co, which is responsible for the Daya

Bay civil engineering work, already has 608 foreign and Chinese staff working on the site.

Mr William Stones, chairman of the Hongkong Nuclear Investment Co (HKNIC), said yester-

day's ceremony showed that the Daya Bay project was proceeding smoothly as planned.

The HKNIC, a fully-owned subsidiary of the Hongkong-based China Light and

Power Co, is a 25 percent partner in the Daya Bay joint venture.

Mr Stones also dispelled fears that substandard concrete pumps would be used for the project, thus compromising the strength of the reactor's containment structure.

Mr Stones said all six pumps now in use at the site were new.

Officiating at the ceremony yesterday were Mr Jiang Xinlong, Minister of Nuclear Industry, and his deputy, Mr Zhou Ping.

Other senior Chinese officials including the Governor of Guangdong Province, Mr Ye Xuanping, and the mayor of Shenzhen, Mr Li Hou, were also present.

Among the guests of honour from Hongkong were a delegation of five Legislative Councilors, led by Mr Wong Po-yan.

The chairman of China Light, Lord Kadoorie, and leading members of the local scientific community attended the function.

The Hongkong Government, which is HKNIC's financial guarantor in the Daya Bay scheme, was represented by Secretary for Economic Services, Mrs Anson Chan.

The Government is convinced the two 900-megawatt Daya Bay reactors are a long-term answer to Hongkong's increasing power demands.

## Harwell Report Delayed

51500003c Hong Kong HONGKONG STANDARD in English 27 Aug 87 p 2

[Article by Andy Ho]

[Text]

THE long-awaited British consultancy report on Daya Bay nuclear power plant has once again been delayed.

Miss Annie Lam, the Assistant Secretary for Economic Services, yesterday told *The Standard*, recommendations by the United Kingdom Atomic Energy Authority at Harwell would not be ready before mid-September.

The report has been delayed repeatedly for about a year. Two Harwell officials told the press last May that their studies would be completed by mid-July.

Mr John Wilson, the official in charge of Daya Bay related issues, later pushed the expected date to late August. The Government has now changed the date to mid-September.

"The workload of the Harwell experts has been increased following their fact-finding trip here," said Miss Lam.

"There is no clear indication when the report will be submitted to the Government."

She added that a delay of a month or two would not be important as there would be ample time for the territory to prepare for the nuclear emergency measures before the plant became operational in October 1992.

Meanwhile Legislative Councillor and member of the ad hoc group on Daya Bay, Mr Cheng Hon-kwan, has urged the Government to set up a local committee with members of the public to oversee the implementation of the future Daya Bay contingency plans.

And he said that the committee's jurisdiction should go beyond advising the Government. It should be charged with executive power.

"Apart from relevant Government officials, the committee must also comprise

radiologists, nuclear engineers and social workers who can help promote public education programmes on nuclear energy," said Mr Cheng.

The anti-nuclear coalition should also be represented on the committee if they would accept the invitation, he added.

The call for a panel of experts to deal with Daya Bay issues was first spelt out in a Legco nuclear power report almost a year ago.

The Government has in principle accepted the Legco members' suggestions but has not said how it would go about establishing the panel.

"It is now a good time to set up the group in view of the forthcoming Harwell report," said Mr Cheng.

"A major task for the committee is to review the proposals and ensure that the accepted ones will be properly carried out."

Mr Cheng, a structural engineer by profession and the former president of the Hongkong Institute of Engineers, represents the engineering field in the legislature.

He earlier requested a site visit for the councillors to inspect the civil engineering work at the Daya Bay reactor building. The trip has been scheduled for October.

The councillors have called for a Sino-Hongkong joint committee to monitor the \$28.7 billion project. But Mr Cheng said his Legco colleagues had not been informed of much progress in this regard.

An obstacle was defining the terms of reference for the proposed cross-border committee, he said.

"China has already got the National Nuclear Safety Administration as its official watchdog," he said.

## ARGENTINE, BRAZILIAN INTEGRATION EFFORTS: NUCLEAR OPENING

33480411 Bahia Blanca LA NUEVA PROVINCIA in Spanish 22 Jul 87 p 7

[Article by Oscar Camilion]

[Text] The meeting between the presidents of Argentina and Brazil contained some aspects that could be termed routine, as well as some others which were not at all routine. The first seem inevitable, given the 6-month intervals at which these conferences are scheduled. It is virtually impossible for an element of routine not to appear in such frequent meetings. The more innovative aspects are quite varied. Sometimes they seem plausible; sometimes they may give rise to questions; and in other instances, they may provide definite targets for criticism.

One piece of good news which certainly passed unnoticed by the majority of the observers was Brazil's acceptance of the principle of fair compensation for the use of Argentine roads by the Brazilian trucking fleet that transports merchandise to Chile. This has been an issue debated at much length by the two diplomatic corps. The question seems clear from a theoretical point of view. Just as any vehicle has to pay licensing fees to compensate for its use of provincial, national or municipal roads, when these roads are used by a foreign vehicle it seems only fair that the foreign vehicle should have to pay a similar tax. Yet experience shows that it is by no means easy to set standards for establishing a compensatory form of payment. The simplicity of the issue on one hand, combined with the difficulty of resolving it on the other, have brought the two diplomatic corps to a somewhat difficult situation. However, it is not true, as some persons thought, that this problem of fair compensation was the cause of the so-called trucking war in the 1970s.

Now it seems that Argentina and Brazil have found a mechanism so that the powerful trucks coming from Brazil which wear down our roads will not receive more favorable treatment than our own Argentine trucks do. We should remind the reader that this is not a matter of charging for bilateral Argentine-Brazilian traffic, but rather for the use of Argentine roads by trucks coming from Brazil and going to Chile. Before issuing a final opinion, though, we still need to learn all the facts about the agreement that has been reached, since the data published are quite sketchy.

Other agreements reached during the past 3 months and reflected in the documents signed during President Sarney's visit will have less of an impact. Some new products have been added to the list of Protocol no 1 on capital goods. The time frame of Protocol no 2, in which Brazil makes a commitment to purchase its wheat from Argentina, has been extended for 2 years. The time frame in effect for concessions under the Limited Scope Agreement no 1 has also been extended; this is the document which consolidates the concessions granted during the years in which the LATA [Latin American Free Trade Association] was in effect. Other documents established the operational bases for the Investment Fund scheduled in the original program in order to use appropriate payments to maintain equilibrium in the quality of trade, which is presumed to be a goal of the agreement.

#### Nuclear Talks

Nevertheless, the central and most important topic of the presidential meeting seems to have been President Sarney's visit to the CNEA's [National Commission for Atomic Energy] uranium enrichment plant in Pilcaniyeu. The purpose of this visit was to create a sort of opening up of the most sensitive part of the Argentine nuclear program toward its largest neighbor, which is also the only country in the region with a nuclear program of comparable potential significance. This is a far-reaching decision by Dr Alfonsín and should consequently be considered very carefully.

In 1976, when I was at the Argentine Embassy in Brazil, I had an opportunity to experience very close at hand the offensive waged against the Brazilian atomic program by President Carter, who was elected in November of that year. Early in 1977, when he had just barely taken office, Carter initiated a furious offensive against Brazil's nuclear policy. He sent Vice President Mondale to put pressure on the German government, trying to get it to cancel the contracts that had been signed with Brazil 2 years earlier. Another top official was sent to Brasilia for the same purpose. The Brazilian government reacted with surprise to this unexpected position, for, among other reasons, Brazil had negotiated with the FRG only because it had not met with any response in the United States about the development of its program. Moreover, Brazilian diplomacy has traditionally been founded on the assumption of its automatic alignment with the United States, because of the absence of any interests in conflict. This is precisely what led to the strategy of automatic alignment.

At that time I issued a public statement supporting the Brazilian nuclear program, indicating that Argentine had no misgivings about the development of that program. The purpose of that statement was to remove substance from one of the U.S. arguments--that it would start a nuclear race in the region, particularly as neither Brazil nor Argentina signed the Nuclear Weapons Non-Proliferation Treaty. That statement caused some irritation in Buenos Aires, and it also unpleasantly surprised some sectors of Brazilian diplomacy, which considered it a stratagem to facilitate negotiating conditions for the Itaipu problem. Moreover, it produced a major impact on Brazilian public

opinion, and in fact had a favorable effect, creating improved political conditions for dealing with hydroelectric power projects. The purpose of the statement, though, was something else: it seemed clear that if the United States managed to destroy the Brazilian nuclear program, the same thing could happen to the Argentine nuclear program, which was still quite far from a successful mastery of the complete fuel cycle technology.

As we know, Brazil did manage to resist the U.S. pressures, though it was not able to correct the mistakes that were made in the design of the nuclear program it had contracted with the Federal Republic of Germany. Its scale, which was obviously too large for Brazil, and some technical matters that were poorly handled have made the Brazilian nuclear plan one of the less successful aspects of Brazil's policy during the past 15 years. But at the same time, bilateral nuclear relations with Argentina have proceeded well. After the hydroelectric issue had been resolved, it became possible to initiate ongoing practical talks on nuclear matters. In 1980 five nuclear agreements were signed, which not only moved forward in cooperation in terms of joint research between the two countries' technical organizations, but which also provided for industrial cooperation. Argentina was given the assignment of providing fuel elements for Brazilian power reactors, and Brazil, the job of manufacturing part of the reactor vessel that will be used in Atucha II.

This means that for years relations between the Argentine and Brazilian nuclear establishments have been oriented in the most cooperative manner possible. The objective pursued for over a decade has in fact been to work out a sort of tacit bilateral non-proliferation agreement. It was my job to analyze, working with the Itamarati leadership, this obvious practical issue. Nuclear non-proliferation is not a policy followed with all nations, even though all are asked to sign the TNP [Nuclear Non-Proliferation Treaty]. This is a concern in dealing with specific local situations in which a nuclear arms race could arise. The TNP is not an issue for Sudan and Ethiopia, even though there is constant friction between these two countries, but rather for about half a dozen situations in the world: the Middle East, Pakistan and India, South Africa, and in South America--Brazil and Argentina. For this reason the nuclear issue has been part of the concerns of U.S. foreign policy in relation to South America.

This explanation may help to clear up some points. In the first place, the need to focus the Argentine-Brazilian nuclear relationship constructively has not just been discovered recently. It goes back many years. Secondly, it is in fact essential that the nuclear programs of both nations be oriented toward the development of the peaceful aspects of nuclear energy, which are also its most complex aspects. Thirdly, it is vital for them to keep open channels of cooperation; this supposes a guarantee that both nuclear programs will not generate an arms race. Fourthly, it is possible to set up cooperation programs between the Argentine and Brazilian technical establishments. Nevertheless, at the same time it is necessary to remember that Argentina



and Brazil are two different states, and that confusion in this area may become a source of much greater difficulties than any problems the cooperation agreements could generate.

#### Nuclear Unknowns

Integration does not mean confusion. Assuming that there might now be an integration process between Brazil and Argentina, which is far from the truth, that would never entail confusion between Argentina and Brazil as state realities. In Europe where there is integration, the reality of the states keeps their profile intact. It is true that the current state of European evolution anticipates some important innovations for the future. In 1992 it will enter a new phase in which people could really talk about a true economic community. In the military field some innovations are being introduced, like the projected creation of a Franco-German binational army unit. Still, all these steps are quite cautious. France keeps its military apparatus separate from NATO. It would certainly not be willing to share its sensitive nuclear programs with Germany or with England. While it is true that there is an enriched uranium production program in which Great Britain, Holland and France all participate, because in this instance the patent is held jointly by the three nations, the French and the English have exclusive access to other sensitive programs in more critical nuclear areas. In monetary matters there is the European Monetary System which attempts to maintain a suitable parity system between the currencies of the major nations, but Great Britain has still not decided to take part in the mechanism. At this point in the evolution of European events, the ECU (European Currency Unit) is only a currency used for accounting purposes, despite the low and fairly similar inflation levels in Europe, and the possibility that securities could be issued based on the ECU.

It is obvious that the Europeans still believe in the state's existence. For example, Germany has no goal more important than reconstituting the political unity of the German nation in a sovereign state unit, even though under present conditions that is not possible. No one will take any step of cooperation or integration if there is confusion between different entities. But this is a mistake to which people may be prone if they do not clearly grasp the concept of what the state is, and if their major political categories lie in other sectors of the political situation, either the party, the class, the political system or international affiliations.

It is now clear that the Argentine nuclear plan has entered a period of profound crisis. The same thing is happening with the Brazilian nuclear program. But the reasons for the two cases are different. Argentina has never oversized its nuclear plan, which is obviously what happened with Brazil from the very start. Argentina has pulled back somewhat, though, and for this reason the investment program sought for the nuclear field now seems difficult to obtain. It is becoming necessary to have some options, and potentially some cutbacks, or at least some modifications in the pace of

the program. It would be quite another matter, though, to dismantle it or change its nature because of other ideas, prejudices and viewpoints coming from outside Argentina. The Argentine nuclear plan has aroused political objections for strategic reasons in the United States, as well as political objections for ideological reasons in some European environments which have ties with government sectors.

The least that can be said about the attitude of the government which took office on 10 December 1983, about the news reported a few days earlier that Argentina had developed a method for enriching uranium using its own technology, was that its position was one of marked indifference. In fact, this important development served to strengthen in the minds of the new rulers the idea of the military objectives which the CNEA's policy might have. The sectors of the radical government with the closest foreign connections did perceive the great impact produced by the announcement of this scientific discovery by Argentine researchers. In fact, that announcement was page-one news in all the world's newspapers, in a climate of little confidence in Argentina because of the Falklands War.

Nor is it an exaggeration to say that our nuclear policy has entered a phase of increased obscurity, of which the statements made by engineer Costantini [former CNEA director] have given periodic indications, along with some less explicit comments by the present head of the CNEA. The battles of the Commission with the head of the department of finance have become a matter of public knowledge. But in any case it is clear that what must be done in this field is not up to Mr Brodersohn [secretary of finance], but is rather Dr Alfonsin's responsibility.

Given this background, President Sarney's visit to the Pilcaniyeu plant has brought up some natural questions. The attempt to eliminate distrust between Argentina and Brazil is certainly the right policy. In any event, Argentina should confirm the peaceful purposes of its nuclear plan. And it is a fundamental goal for Brazil to do the same thing. It is good for there to exist the best possible contacts between the technical staffs of the two nations, and for their nuclear foreign policies to concur in the many forums in which nuclear policy problems are discussed throughout the world and in the region.

But at the same time, sensitive technologies in nuclear matters belong to the arcane fields of state security. These are not matters which are susceptible to much openness. Nor is it appropriate for occasional attitudes of mutual sympathy to prevail in them. One question must be asked: would Dr Alfonsin have invited General Figueiredo for a comparable visit, even though he was the Brazilian chief executive who for many decades had the deepest interest in matters related to Argentina? Of course, no one should think that a presidential visit to such a highly complex facility represents anything more important than a mere act of symbolic presence. What is at stake

here is something else: the possibility of mixing up together the nature of the ongoing problems of states, based on the circumstantial situations of governments which consider themselves allies.

Friendship with Brazil is Argentina's top priority. This policy, which is leading to the strengthening of our bilateral ties, must be continued, no matter what its economic results may turn out to be. Of course, if these economic results are not good, that will have a negative political impact. For the time being, though, everything suggests that nothing resembling a true integration process is going on with Brazil. This is all the more reason why the rhetoric of integration must be avoided. Such rhetoric could lead to an unacceptable confusion between what the Brazilian state is and what the Argentine state is. This is an essential condition for preserving the harmony which is vital between the two nations.

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## NUCLEAR PLAN CRITICIZED, CONGRESSIONAL OVERSIGHT PROPOSED

51002128 Buenos Aires LA PRENSA in Spanish 12 Jul 87 p 7

[Article by Miguel J. Culaciati]

[Text] For decades, practically side by side with the state's creation of its very first nuclear organizations, a number of concepts have shaped and now continue to shape nuclear activity in our country; these ideas have changed very little, despite the changes which have taken place in the rest of the world.

The basic elements of the policy which Peron initiated were similar to those in many other areas: statism, represented by a government monopoly over all nuclear activity, nuclear power plants, and uranium mining; nationalism evidenced in an expensive and stubborn position of apparent independence in relation to the rules of behavior established in international treaties, which even today we are still refusing to sign (the TNP [Nuclear Non-Proliferation Treaty] and the Treaty of Tlatelolco); and the adoption of natural uranium using German and Canadian technology. Behind all this there still hovered in a somewhat hazy manner the program's military objectives, which can be seen by our reluctance to accept international controls, safeguards, the involvement of naval officers in the CNEA [National Commission for Atomic Energy] leadership, the claim to the right to conduct "explosions for peaceful purposes," the attempt to build reactors for submarines, and experiments involving uranium enrichment.

Among the fantasies of the CNEA's bureaucracy, there followed one after the other policies restricting nuclear cooperation with other South American countries, the export of sensitive technology to countries that are promoters of worldwide terrorism like Libya, and agreements with states which could potentially be involved in a nuclear conflict (Iraq).

Later we shifted our orientation and initiated a process of technical collaboration with Brazil, whose nuclear system is even more expensive and chaotic than our own.

The results, covered up by a perfect publicity campaign, might have been kept hidden from the public for many years.

Almost everyone in Argentina believed that the CNEA was an island of efficiency and high technology of benefit to all.

Recently, with the advent of democracy, an unrestricted critical analysis was begun of what has been done. Its first revelations have brought to light some astounding facts.

The CNEA has poured into the nuclear plan and its accessories the fabulous sum of \$10 billion just in its "external debt" alone; that is twice the amount of YPF's [Government Oil Deposits] debt.

Its budgets have by far exceeded the budgets of Argentine Railways and those of almost all the nation's provinces. Last year the CNEA budget was over \$600 million.

The nation has invested 20 percent of its total external debt, without really knowing what this money was being spent for.

The nuclear plants in operation (Atucha I and Embalse) generate electricity that is more expensive than hydroelectric power, if real costs are used in preparing the analysis. What is invested in building a nuclear power plant could produce almost three times that amount of hydroelectric power, and it could do so more cheaply.

The recent accidents which have occurred in Russia and in the United States have raised doubts about the safety of these nuclear plants; in Argentina these doubts are further complicated by the fact that the CNEA has placed its plants in places where leaks of radioactivity could create disasters of incalculable proportions.

Nuclear power plants and facilities are critical targets for terrorist attacks. Just imagine what a single bomb or the theft of radioactive elements could do.

A severe administrative crisis is now afflicting the CNEA and it may have adverse effects on its safety controls.

There are large quantities of highly dangerous wastes stored under dubious conditions.

There have been toxic leaks in uranium mines which could contaminate the San Roque Lake in Cordoba, and also at the Embalse Plant on Rio Tercera, with the potential for causing a serious accident.

The myth of nuclear independence is nothing more than that, a myth, as the majority of the key components in our plants are imported, and we must rely on foreign suppliers to keep them in operation.

So what should be done about the future of the nuclear plan?

Argentina needs to totally redimension its nuclear activity, by establishing new guidelines whose primary objectives should be environmental protection and economically sound investments, abandoning the policy we have followed to date.

International nuclear safety treaties should be signed, and we should halt any dangerous projects.

The gradual deactivation of the plants now in operation should be studied as our hydroelectric generating capacity grows, and they should be kept only to provide an alternative source of electricity.

Work on new plants should be halted, along with the heavy water plant. There will be no market for the production of this plant when it is finished, and other alternative uses may have to be sought for it. The world now has a surplus of heavy water production capacity.

The CNEA should be placed under parliamentary control, by setting up an independent National Nuclear Safety Commission, composed of private and government scientists, legislators, and representatives of the provinces affected.

Research can and must be maintained, reorienting and increasing its budget using funds released by cutbacks in other operations.

The joint enterprise ENACE [Argentine Nuclear Enterprise for Electrical Power Plants] should also be liquidated; it serves only to raise costs and duplicate bureaucracies.

Naturally, the lobby of companies with connections to the CNEA will set up a huge smokescreen, alleging that halting work on projects or the reorientation of the nuclear plan will be more expensive than continuing it.

The CNEA recently announced its intention of building two new plants on the Uruguay and Parana Rivers.

If carried out, these projects would significantly increase the geographic area at risk from a possible nuclear disaster.

At the same time, if the state does decide to invest its resources in these nuclear plants, hydroelectric projects such as the Middle Parana project will inevitably have to be postponed for an indefinite amount of time. Such projects are much safer and more beneficial.

For the purposes of analysis it is sufficient to compare the cost of Yacyreta (about \$6 billion) with what has been spent on the nuclear plan (over \$10 billion) and the final amount of electricity generated, which will be significantly greater in Yacyreta alone, despite the enormous mistakes that have been made in carrying out this project.

The Brazilians built Itaipu for less money, and we could have made an integral use of water and gas resources with much greater efficiency.

Continuing our nuclear course will in the end amount to mortgaging our children's future, not just economically but also--and this is even more serious--the environmental legacy we leave to them.

7679

## RADIOACTIVE WATER LEAK IN ANGRA I FAILURE REVEALED

51002135 Sao Paulo O ESTADO DE SAO PAULO in Portuguese 18 Aug 87 p 3

[Report: "Situation at Angra I More Serious, With Leak of Radioactive Water"]

[Text] Rio de Janeiro (AGENCIA ESTADO)--Technical experts in the nuclear field believe that the situation at the Angra I Nuclear Power Plant is much more serious than had been supposed, because in addition to the breakdown of the main electric generator--which will take between 6 months and 1 year to be repaired--the state enterprise itself declares in its lawsuit that the plant sustained various leaks including even the loss of radioactive water and will have to replace the equipment of the steam generators long before the end of the useful life specified in the contract with Westinghouse.

In the lawsuit, Furnas says that Westinghouse induced it to buy the Model D-3 steam generating system, which was designed to last 40 years. Furnas' experience with this equipment, however, has demonstrated that it has defects in respect to its design, its manufacture, and the raw materials used.

Furnas states in the lawsuit that one of the principal defects occurs in the system of pipes of the steam generators, the individual pipes of which are deteriorating and reveal various forms of corrosion, with cracks developing in the pipes that allow the radioactive water to leak into the secondary system.

Although Furnas notified Westinghouse on a number of occasions of these defects and demanded that the leaks in the pipes be repaired without additional cost, Westinghouse refused to do so. Furnas was therefore obliged to spend significant sums to apply a special treatment to the pipes to retard corrosion, among other things.

Furnas alleges that as of that date Westinghouse already knew of the defect in the Inconel-600 and deliberately withheld the information, and is therefore suing the U.S. company for fraud, bad faith, negligence, and violation of contractual warranties through the law firm of Shereff, Friedman, Hoffman, and Goodman (of New York), which is also representing the San Onofre and Indian Point nuclear power plants against Westinghouse, for the same reasons.

## Financial Losses

NUCLEBRAS [Brazilian Nuclear Corporations, Inc.] last year spent a total of 5,878,300,000 cruzados solely to refinance its debt (domestic and foreign), of which sum 5,478,600,000 cruzados was liquidated by means of other refinancing operations. This debt picture--aggravated by the successive refinancing operations from one fiscal year to another, with a corresponding increase in the financial charges--is reflected in the growth of the ratio of demandable debt to total assets from 94 percent in 1985 to 98 percent in 1986, according to NUCLEBRAS' annual report.

10992

## PIRES, OTHERS DEFEND PEACEFUL PURPOSES FOR NUCLEAR ENERGY

## Army Minister Refutes Nuclear Critics

51002135a Rio de Janeiro O GLOBO in Portuguese 1 Aug 87 p 6

[Report: "Leonidas Says Brazil Must Master Nuclear Technology"]

[Text] General Leonidas Pires Goncalves, minister of the army, has issued a press release--entitled "Nuclear Power, the Energy of the Future"--in which he warns that in order to guarantee peace in the future, "Brazil must above all be a nation that is highly developed technologically and therefore a nation that is strong and respected." In other words, the minister believes that "the debate concerns whether it will be a great nation."

In the statement issued by the Army's Social Communications Center, the minister contends that nuclear technology is a cycle that must be mastered progressively and is evolving freely. He makes the following prediction: "If we do not, without delay, move ahead to more advanced stages--stages which will come--we may become fearful of this source of energy. Worse still, we shall become dependent and subservient and be once again--in this new era that is coming--mere suppliers of raw materials, this time of radioactive minerals."

Gen Leonidas has harsh criticism for those who oppose nuclear power plants. "We are not stalled on the highway of progress, but neither are we exempt from becoming anachronistically entangled in the web of fears, preconceptions, and superstitions fashioned by today's opponents of progress, who regard nuclear power plants as diabolic."

He contends that without nuclear energy no nation will have a future, pointing to the fact that at the present time there are 406 nuclear power plants in operation worldwide and another 139 under construction, most of them in the more developed countries. He compares modern nuclear power plants--in terms of safety and efficiency--to today's aircraft.

The minister justifies his support of the development of nuclear power in Brazil by arguing that petroleum is a nonrenewable energy source and that hydro-electric power has limitations, whereas nuclear power--and only nuclear power--is inexhaustible. He emphasizes his point that "no country restricts itself technologically, for by adopting such an absurd attitude it would be opting to limit its own greatness and sovereignty."



The commanders of the Military Region will meet at Army headquarters from 3 to 5 August, primarily to deal with administrative matters. The meeting will be opened by Minister of the Army Leonidas Pires Goncalves and will be coordinated by the army chief of staff, General Fernando Valente Pamplona.

The agenda for the meeting consists of a plan for the transfer of military personnel; support from the commanders of the Military Region for the regional sections of civilian personnel; equalization of armament; courses and apprenticeships in civilian industry for mechanics; modernization of vehicles; maintenance of engineering equipment; transportation of communications equipment; support for educational activities; the situation with respect to the materiel of the Quartermaster Corps; and the situation with respect to the Army Health Fund.

The meetings will be attended--in addition to the commanders of the Military Regions and the army chief of staff--by the departmental heads and secretaries of economy and finance and of science and technology.

#### Nuclear, Space Programs Supported

51002135b Sao Paulo FOLHA DE SAO PAULO in Portuguese 9 Aug 87 p A-4

[Report: "CTA Director Supports Use of Nuclear Energy"]

[Text] (Paraiba River Valley bureau)--"We are going to continue research in the nuclear area. The coming generations cannot in any way, shape, or form be deprived of this knowledge. The 'know-how' must be acquired. It is a necessary technology." The above statement was made by Air Force Major General Luiz Carlos Boavista Accioly, director of the Aerospace Technology Center (CTA), in an exclusive interview granted to FOLHA DE SAO PAULO in his private office. The CTA--an organ of the Ministry of Aeronautics--is located at Sao Jose dos Campos, 97 kilometers northeast of Sao Paulo.

Despite the fact that he is not a scientist but rather an officer whose entire career has been oriented toward the command of troops (his most recent job was that of commandant of the Natal Air Base), Gen Accioly--who took over as CTA director on 26 February of this year, replacing Air Force Major General Hugo de Oliveira Piva--says he feels "very comfortable" today at the head of the research center, for--he explains--"I have a cohesive team of civilians and military personnel who have a high level of professional competence."

The Institute of Advanced Studies (IEAV)--an entity with ties to the CTA--has for approximately 7 years been conducting research in the nuclear area with respect to the production of uranium and compact reactors. In August of last year FOLHA DE SAO PAULO carried an exclusive report to the effect that technical experts of the Institute were preparing pits and wells at the Cachimbo Army Base for the future probable testing of nuclear devices (atomic warheads). When he speaks of the progress of research in this field, Gen Accioly is rather cautious. He acknowledges, however, that "the research is continuing. The IEAV," he says, "was created specifically to work on advanced technology. It should keep itself in the vanguard--in terms of capability--in order to serve



other CTA institutes. In the nuclear area, its research is conducted at the theoretical and experimental level and will continue, for we all know that the world of tomorrow will not have at its disposal all the energy it needs. In making this statement I cannot say whether this point will be reached in 15, 20, 50, or 100 years from now. At some point, however, we are going to view nuclear power as an essential ingredient of the continued existence of the human race."

The Brazilian Complete Space Mission (MECB), which envisages the launching of four Brazilian satellites before the end of the decade, also has the cooperation of the CTA through its Space Activities Institute (IAE), which is scheduled to build a satellite launching vehicle (VLS). In addition to the MECB, another entity--the National Institute of Space Research (INPE), with ties to the Ministry of Science and Technology--is also involved in a space program, namely the construction of the four satellites to be launched from the base at Alcantara, Maranhao. It is a national project, approved by the Federal Government in the late 1970's. Although a number of problems have arisen--as for example the delays in the release of appropriated funds and the "brain drain" of specialized technical experts of the two entities--the CTA director says that "it is an important national project, of the greatest importance for our country. It was an option taken by Brazil--by the MECB--which chose not to become preoccupied with speeding up matters but rather to develop the capability to make its own launcher, which represents a great technological advance."

The general is of the opinion that the principal objective of the MECB is to realize Brazil's potential to have its own technological capability, for--he says--"you cannot put a price tag on technological development. It is necessarily a top priority," he adds, "for a nation that wants development." The CTA has scheduled for September of this year the launching of the rocket Sonda IV (PT-03)--which is to serve as one of the engines of the VLS--as well as the launching of a VLSP (a VLS scaled down to one-third size).

#### Aeronautics Minister Urges United Effort

51002135c Brasilia CORREIO BRAZILIENSE in Portuguese 21 Jul 87 p 16

[Report: "Moreira Lima Says Nuclear Program Requires Unity"]

[Text] Minister of Aeronautics Octavio Moreira Lima said yesterday at the Brasilia Air Base that all efforts must be combined in all areas in order that Brazil may make progress in the field of nuclear power and not be disunited by "inappropriate mistrust." He was referring to the criticism that the scientific community made of the parallel nuclear program during the SBPC [Brazilian Society for the Advancement of Science] meeting held last week in Brasilia. The scientists fear that Brazil will utilize nuclear energy for nonpeaceful purposes.

Moreira Lima believes that this unity of effort is essential, in view of the fact that in this field Brazil lags behind other countries. He says that Brazil lacks the financial and human resources, and the technology, that would enable it in the future to utilize nuclear energy.

While the Brazilian Nuclear Program was being discussed last week at the SBPC, the minister and his high command were visiting the installations at the Cachimbo proving ground in southern Para State. The minister said that this area would be used "solely" for testing conventional devices and weapons. "We are abandoning the traditional test sites," he said, "because of the urban development that has taken place in these areas.

"Cachimbo will enable us to conduct these tests without risk," the minister concluded.

#### CNEN Chairman Rejects Foreign Dictation

51002135d Sao Paulo O ESTADO DE SAO PAULO in Portuguese 16 Aug 87 p 2

[Report: "Nation Rejects Dictation Concerning Nuclear Policy"]

[Text] Brasilia (AGENCIA ESTADO)--The Brazilian scientific community met last Thursday in Brasilia to discuss openly--for the first time--Brazil's independent nuclear energy program. The principal topic for discussion at the seminar--entitled "Brazil and International Nuclear Policy"--held under the sponsorship of the National Commission for Nuclear Energy (CNEN) was the monopoly exercised by certain highly industrialized countries and the imposition, by those countries, of discriminatory mechanisms that inhibit the development of nuclear energy for peaceful purposes. "Brazil firmly rejects this dictation," said CNEN Chairman Rex Nazare Alves.

The CNEN chairman insists, however, that the Brazilian Government "has followed a clear, coherent, and consistent policy in favor of disarmament and the non-proliferation of weapons, and therefore is in accord with the adoption of universally accepted safeguards."

According to the director of safeguards of CNEN, Marco Antonio Saraiva Marzo, access to nuclear technology for the developing countries has been made increasingly difficult by the industrialized countries, on the pretext of the possible danger of a proliferation of nuclear weapons. Marco Saraiva points out, however, that "the great powers that dominate nuclear technology and the commercial production of enriched uranium are precisely the principal possessors of nuclear weapons."

According to Marco Saraiva, the argument of the "possible danger of a proliferation of nuclear weapons" is directly motivated by a market of hundreds of billions of dollars, and indirectly by the desire for technological subjugation of the colonialist type through the monopolistic use of an instrument of political pressure on the developing countries. "It is therefore necessary," he adds, "for Brazil to make an adequate effort to master nuclear technology by seeking a fair share of international trade, because the technological cartel has acted with great harshness to maintain its monopoly."

The fact is that in all sectors of nuclear technology there is a lack of structures and autonomy to further the development of research. Conscious of this harsh reality, the Brazilian scientists--with the support of the CNEN--decided

that only one option remains: to say "enough" to the foreign powers and defend our own technology.

CNEN Chairman Rex Nazare declared that the bilateral cooperation agreements with the United States, France, and Germany have contributed to Brazilian nuclear development but "have never given us complete access to the sensitive technologies."

10992

## PLANS FOR ROOPPUR NUCLEAR POWER STATION REVEALED

Dhaka THE NEW NATION in English 17 Aug 87 p 1

[Text]

The government has decided to go ahead with the implementation work of 320 megawatt Rooppur Nuclear Power Station near Ishurdi in Pabna district from December next year, reports RSS.

The decision was taken at a high level meeting of Rooppur Nuclear Power Plant implementation committee held at the President Secretariat here yesterday with President Hussain Muhammad Ershad in the chair.

Finance Minister M Syed-uzzaman, Energy Minister Anwar Hossain Principal Secretary to the President AHFK Sadeq, secretaries of External Resources Division and Ministry of Energy, and Bangladesh ambassador to the Federal Republic of Germany Major General Mozammel Hossain attended the meeting.

The power plant is expected to be ready for commission after four and a half years to five and a half years from the date of start of works in December, 1988.

The meeting reviewed the progress of Rooppur nuclear power project and approved the undertaking of final feasibility study of the project to commence next month.

The feasibility study will be completed by the first half of

the next year.

Upon completion of the feasibility study, a final project proposal will be submitted to the government.

In the meantime, the meeting gave the go-ahead signal to sign bilateral agreement with the Federal Republic of Germany on the use of nuclear power and the project.

The FRG will provide technological support to the project. Bangladesh has agreements with France and the USA regarding use of nuclear power for peaceful uses.

Speaking at the meeting, President Ershad said with limited support and back-up for generation of electricity, it is imperative for Bangladesh to look for alternate sources for the purpose and nuclear power is the natural choice in this regard. He said presently Bangladesh is generating its electricity from thermal, water and gas power stations.

President Ershad laid importance on timely completion of a project to deliver its designed benefits to national economy and said considering the vital importance of the Rooppur Nuclear Power Project, its work should be carried out within the time frame.

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CSO: 5150/0204

## ELECTRICITY MINISTER ON NUCLEAR PROGRAM, PLANS

NC121022 Cairo MENA in Arabic 0845 GMT 12 Aug 87

[Excerpts] Cairo, 12 Aug (MENA) — Electricity Minister Eng Mahir Abaza has affirmed that Egypt will not begin implementing its nuclear program to generate power unless guarantees for nuclear safety are ensured.

He added that the Egyptian Government is awaiting a UN report in September assessing the situation after the incident at the Chernobyl reactor. Based on this report, he added, the Egyptian Government will either implement its program or postpone it for some time.

In an interview published today in the Egyptian magazine *Akhir Sa'ah*, the electricity minister said that the government, meanwhile, is preparing a study on the location of the proposed nuclear plant in the Al-Dab'ah area and on the possible establishment of a laboratory for processing nuclear fuel to be used in development efforts. He noted that there is a laboratory in this area for extracting uranium for research efforts by the Egyptian Authority for Nuclear Material to study and assess existing nuclear material in Egypt and the possible processing of these materials.

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CSO: 5100/4613

## PAPER INTERVIEWS AUTHOR OF BOOK ON PAKISTAN BOMB

51500007 Madras THE HINDU in English 2 Sep 87 p 8

[Text]

*Mr. Herbert Krosney is an award winning television writer and producer and the co-author of the book "The Islamic Bomb", published in 1982. Apart from being a regular contributor to authoritative journals, he also produced the 1981 BBC documentary highlighting Pakistan's nuclear programme, generally considered one of the best researched productions on the subject about which he recently spoke to F. J. Khergamvala, our West Asia Correspondent. The full text of the interview appears below.*

**THE HINDU:** When you first co-authored this book on the Islamic bomb published in 1982, what made you term the Pakistani nuclear effort as the "Islamic bomb", and does this assessment still hold good?

**Mr. Herbert Krosney:** Well, the term "Islamic Bomb" really came from Bhutto and not from us, and when he referred to it, when he said about other civilisations, "there was a Christian bomb and a communist bomb, why shouldn't there be an Islamic bomb?" And he was very much fighting for the prestige, I think, of Pakistan at a time when they had been severely defeated by the Indian forces in the early Seventies.

#### Origin of name

**Q:** So what you are saying is that it is just a matter of definition to call it the Islamic bomb which Mr. Bhutto used, and otherwise it was intended primarily for Pakistan's own purposes?

**A:** I think it actually became more than that, especially in the early stages of attempting to finance the bomb, because he desperately needed significant amounts of cash to finance what would be a multi-million-dollar effort. So following his success, that is accession to be the Prime Minister of Pakistan, he went on a tour of Arab capitals. I believe at that point he was already playing off the chip of having a Pakistani bomb, and attempting to get outside financing, if not for a bomb at least for a nuclear effort, and he was well aware that India was quite well advanced in the nuclear sciences even though at that time India had not yet exploded its bomb. What he did in fact was—our

journalists in the early Eighties demonstrated, we in fact found the Pakistani scientist and a diplomat who had handled a lot of negotiations with the Libyan authorities which took place in Paris in or around 1973-74 and so we were—it was not only myself but was a team from the BBC who spoke not only with him but also with Bhutto's former press secretary, with the former head of the Pakistani International Bureau based in London, who had in fact personally supervised the shipments of suitcases coming from Libya to Pakistan and in those suitcases were huge amounts of cash in American dollar bills, which Libya at that time, in the mid Seventies, provided to Pakistan. So there was in fact an Islamic connection. I do not think it involved every Arab country or Islamic country at that stage, but there was a deal struck between Pakistan and Libya at that point.

#### Libyan aid

**Q:** Is there any evidence, direct or circumstantial, of any other Arab country or Islamic country having been involved in the Pakistani nuclear effort?

**A:** Well, first of all, I should say, I think while Bhutto was overthrown and the new regime came to Pakistan, they were far more conservative in their approaches to the other parts of the Islamic world. I believe that a lot of the sort of tacit undercover deals Bhutto made were not necessarily fulfilled during what became the current military regime in Pakistan. So I know there have been a lot of rumours of Saudi and Kuwaiti backing for the Pakistani nuclear effort, but I do not have any firm proof concerning this and I think the aid insofar as there was Saudi aid to Pakistan, was far more general and was not particularly targeted to its nuclear programme.

**Q:** What particular trade-off would have been involved in this Libyan financing effort with Pakistan in the sense that Libya would have expected some sort of deal in return?

**A:** I am not sure that the return was a bomb. I think that the trade-off really involved Pakistani help for Libyan nuclear efforts and Col. Qadhafi, at that point, in the early years of his regime, was very much interested in himself acquiring a bomb and I think



the trade-off really was that whatever knowledge was developed in Pakistani laboratories would, to some extent, be shared with Libya. How much I do not know, but I think it had a lot to do with reprocessing and plutonium oriented technology.

#### On threshold

**Q:** Some months ago, you recall there was quite a controversy after a prominent Indian journalist had interviewed the head of Pakistan's nuclear programme relating to the Pakistani bomb. What is your view? Does Pakistan have a bomb or how close is it to having one?

**A:** I think Pakistan has essentially gone on two routes, both the uranium enrichment route and the plutonium route, to acquire the bomb. I believe in both areas they are probably at the stage where they can produce weapons quality enriched uranium and weapons quality plutonium. As for the state of their delivery systems I do not know, and as for making the bomb itself, I am not sure. I think they would be prepared, if they make a political decision to do so, to be able to test the bomb. I think they have not done so for political reasons, and not for technological reasons.

**Q:** And in these days is it necessary actually to test the bomb on the ground or underground, or can it be done electronically?

**A:** I do not believe it can be done electronically. It is much better to test, though it is not absolutely necessary. And even though nuclear knowledge remains somewhat restricted I think it is much better. You can do it. You could still use such a bomb in an emergency but even in the United States and the Soviet Union with their highly advanced nuclear technologies, they still want to test and they are certainly, you know, a thousand light years ahead of what the Pakistani nuclear programme is, which is considered primitive in relation to the superpowers' weapons of mass killing.

#### Political decision

**Q:** You mentioned that it is a question of a political decision for Pakistan whether to go ahead with the weapon or not. On what factors would such a political decision rest? For example, there has been a lot of talk about clandestine purchases by Pakistan still going on, and there have been comments about the U.S. shutting its eyes to or winking at such a programme. Would you link it with the American aid programme to Pakistan?

**A:** Yes, I think the Pakistanis are very wary of offending the Americans. And I think going back to the period of the Carter Administration, the Americans made a strong effort to have the Pakistani programme stopped, and in fact they influenced the French to stop the reprocessing plant at Chasma and made, in coordination with the Western allies, a concerted attempt to stop the clandestine purchases which Pakistan was making. When (President) Reagan came in, he offered massive amounts of aid to build up the Pakistani conventional forces but the trade-off was that Pakistan would

not go ahead and develop its bomb. Now what we have seen, and what has been acknowledged over the very recent period of time, is that the Pakistani nuclear programme has gone ahead. They have not stopped work. They have continued to develop and make operational both the programmes for uranium enrichment and, I believe, plutonium reprocessing in small amounts. The Americans under Mr. Reagan in the last couple of years seem to have thrown in the towel, to the extent that they feel they cannot stop the Pakistanis from further developing a nuclear programme. However if Pakistan were actually to test a bomb, that will be a real challenge to an American policy which has really been going on for the last ten, fifteen and twenty years. So I think America, and particularly Congress, will be deeply upset and it would very much affect American aid to Pakistan. So I think the political decision is very much interlinked with the question of American aid. On the other hand they (Americans) feel they need the Pakistanis because of Afghanistan.

#### Pak. denial

**Q:** I was just coming to that linkage with Afghanistan. Don't you think the Pakistanis are holding the Reagan Administration to ransom, realising its need for Pakistan on the Afghanistan situation? There is a strong view that the Pakistani regime is really leading the Americans up the garden path on this issue.

**A:** Well, I would tend to agree, but Pakistan has consistently denied—officially denied—having a bomb or having a nuclear programme oriented towards the bomb. And as I understand, this interview several months ago with Dr. A. Q. Khan (on Pakistan's uranium enrichment programme) was very much off the cuff—informal—and not approved by the Pakistani Government. I do not think the Pakistanis have been flaunting it in the Americans' face. But that is an impression. I honestly do not know what is going on behind the scenes. They certainly do not want, just for political or diplomatic reasons, to flaunt it before the Americans. I do not think they are attempting to hold the Americans to ransom. But they are pushing the limits.

**Q:** What would be the political purpose of the Pakistani effort at manufacturing a bomb? Would you visualise a situation where they would actually think of using it against India or making it available in course of time to a convenient partner anywhere else in the world against any other adversary?

**A:** I think the Pakistanis primarily think of their nuclear effort as an attempt to attain some kind of equality with India where the Indian military forces would not look on Pakistan as a simple walkover, and would realise there would be significant casualties. I feel, going back to the origins of the programme and right through the programme, that it is a Pakistani effort to stand tall and to walk or attempt to walk on an equivalent level with its very powerful neighbour which

is our country, India.

**Q:** Assuming it does not have it now, if Pakistan goes ahead with the decision to manufacture the bomb, it would certainly give it a great amount of leverage within the region, within what we call West Asia, because Pakistan, besides being part of the Indian subcontinent, is also a part of West Asia. Would you think that powerful countries like Saudi Arabia and Iraq would acquiesce in such a decision or politically bring pressure on Pakistan not to go ahead with the programme?

**A:** My feeling is that since Iraq lost the potential for its nuclear option it would tend to look for alternatives if there were any. I do not think the Pakistanis are going to be open to an Iraqi approach in this area. As for the Iraqis or Saudis forbidding or attempting to stop a Pakistani nuclear effort, I think it is in their interest if possible to see a strong Pakistan, not a weak Pakistan, as a fellow Islamic country. I do not think they would intrude in Pakistani policy to attempt to stop it. There is some sort of undercurrent feeling in the Arab world that advances in Islamic science or science in the Islamic world are a positive and beneficial step and there is some resentment, not necessarily exclusively in governmental quarters, at the monopoly of nuclear power in the hands of the superpowers, France, Great Britain, India and Israel.

**Q:** But you mean that the Arab nations believe that India has a bomb and so does Israel?

**A:** Absolutely, the Arabs believe that.

**Q:** Would you link Pakistan's nuclear effort in any way with Israel's possession of a nuclear bomb? The Arabs believe that Israel already has it.

**A:** I think in the early stages there was more of a linkage. I personally look at the Pakistani effort currently mainly in the India-Pakistan context, and possibly also the China-India context. I think the Chinese also have been, they have certainly not attempted to forbid Pakistan from obtaining the technology.

(Mr. Krosney then mentioned the likelihood of Pakistan having obtained the supplies from a particular country but admitted he lacked factual basis for such a statement which he wished kept off the record).

#### **Israeli approach to India**

**Q:** There has been quite a lot of talk about Israel having asked India to assist in a strike on Pakistani nuclear installations. Is there any basis, to your knowledge, or any

evidence of such plans or contingency plans on the part of Israel?

**A:** As far as I have been able to find out, I have tried to check a little bit both in Israel and elsewhere. I do not think there has been any formal approach. You know India and Israel are both democratic nations and therefore members of Parliament may sometimes throw out an idea to a colleague, which I believe is the source of this particular rumour and it does not necessarily have governmental backing. In fact, much as it has been talked about, I do not believe that Israel is prepared to, or can do, or can handle the logistics of or has any inclination to do a pre-emptive strike on Pakistani nuclear facilities. I think, from what I have been able to assess the Israeli view right now, that that is an Indian problem for the time being.

**Q:** It has been denied by the Indian Government officially that any such request was made. But has it ever been officially denied in Israel?

**A:** Well, I believe it has. It certainly was denied to me when I attempted to make inquiries about it. In fact I am quite certain that on the official level no such approach was made. I believe that these rumours have come about because of remarks made by an Israeli parliamentarian to an Indian counterpart; you know, parliamentarians always make remarks to each other but not necessarily official remarks.

**Q:** So you don't feel that Israel would at this juncture feel the need to plan any such strike on Pakistan as it views the Pakistani bomb purely in the context of the subcontinent?

**A:** That is what I believe.

**Q:** Do you think Pakistan has a credible nuclear power programme for energy use?

**A:** I think they actually tried to have one as an offshoot in conjunction with a militarily oriented programme. The problem with civilian nuclear technology in my view is that it can be relatively easily diverted to military uses. The Chasma reprocessing plant which Pakistan desperately wanted and in fact signed a contract with France for in the mid 'Seventies' (1976-78) was stopped by American diplomatic pressure on France. The French eventually made a decision to halt the contract. I think Pakistani scientists would like to see an option of nuclear energy. But they would also like to see an option—I stress the word "option"—of military programme as well.

#### **U.S. and Pak. bomb**

**Q:** You mentioned earlier that the U.S. Congress would view a Pakistani bomb



most seriously. If Islamabad goes ahead, how would the U.S. react? Specifically, given the U.S. compulsions in Afghanistan and the frequent apparent divergence of views on foreign policy between the Administration and the Hill, what really could the U.S. do except accept it as a *fait accompli*?

**A:** Well, it is a complicated question. But I would not underestimate the feeling, especially in the American Congress and certainly in many elements in the Administration, against nuclear proliferation in general. Much of that effort against nuclear proliferation focusses on Pakistan. I think if Pakistan were to declare a nuclear bomb policy more officially it would bring them into serious difficulties with the Americans. I cannot believe that the Pakistanis would go open and they will tread a very careful line on this.

**Q:** Are you planning an update on your book of 1982?

**A:** No. No.

**Q:** Have you or Mr. Weismann ever found it difficult to travel to Islamic or Arab countries after having written a book on the Islamic bomb?

**A:** No. In fact one of the interesting things about the book is, first of all, there was a work in addition to the title of the book being "Islamic Bomb", there are very good chapters on the Indian programme and also on the Israeli programme and I think that the book was a pioneer in journalism in a way. I think it was respected as such. In fact, reprints from the book were made in Saudi Arabia and in some other places.

**Q:** You mentioned that you believe India and Israel both have the bomb. Would you say that Pakistan is already accepting the fact of an Indian bomb?

**A:** I think the Pakistani generals, in looking at a future conflict, a potential conflict with India, have to take into account the strategic possibility of an Indian bomb, even though Indians deny, as you know, that this programme has ever gone the military way. There is no question that India has the capability for a bomb. I think a lot of talk about having a bomb, not having a bomb, you are first talking about technological capacity, capability for making a bomb, and I think India certainly is in that class of nations where it would be simply a political decision to go into a military effort. Pakistan has also arrived at that category but it is not... my impression is that its nuclear programme remains behind the Indian programme.

## U.S. pressure

**Q:** Which are the countries you think are fairly advanced on the nuclear weapon route, or as you mentioned, in a dual purpose programme? Names have been taken of Taiwan, South Africa and some others? Would you name half a dozen of them which could be well advanced on this route?

**A:** Our research has indicated that South Africa certainly is on the point of a breakthrough to having a bomb. As for Taiwan, I believe there was severe American pressure in the mid Seventies and I do not think Taiwan went ahead with its programme. It will be a big mistake for the Taiwanese even to think in those terms. I think they politically have too much to lose. There is no way they can match up with the nuclear programme of the Red Chinese. It was also mentioned that South Korea had made an attempt at a particular point, but again Americans had a considerable amount of influence and they were able to nip it in the bud. South Americans are now having tremendous economic difficulties. For instance, Brazil could advance on the nuclear route, but again, I think it is not. When you are way in debt, when you are experiencing inflation of a thousand per cent it just does not make sense to push a nuclear weapons programme even if you may have the capability.

## Soviet stand

**Q:** One last question. We have not talked about the Soviet diplomatic role in preventing the nuclear weapons programme of any of these countries. You mentioned Israel, India. We talked about Pakistan and some others. How would the Soviets view the situation? Would you say their outlook toward this would be essentially that of the U.S., perhaps using a little more discreet pressure?

**A:** The amazing thing is that in this world of nuclear monopoly where five countries form a club which have nuclear weaponry these powers have banded together in many ways to attempt to forbid anybody else from having a bomb, and I think the Soviet policy like the American policy has been very anti-proliferation. They have not wanted to see the spread of nuclear weaponry. They made only minor kinds of research sales in the nuclear area to certain Arab countries and certain others. I think the main Soviet fear is, their area of real concern is, about their Eastern European allies having a bomb. The Soviets have been among the most restrictive powers when it comes to the spread of nuclear energy and they are very very cautious about what kinds of sales they would approve from their own industry in the nuclear area. So I would say they have a very strong anti-proliferation policy.

## 'DROP AMBIGUITY' IN NUCLEAR PROGRAM

51004762b Delhi Domestic Service in English 0240 GMT 2 Sep 87

[Text] The former Indian foreign secretary, Mr Rasgotra, has said nonproliferation is a myth maintained by nuclear powers to perpetuate their monopoly. Speaking at a conference in Islamabad yesterday on nuclear nonproliferation in South Asia, he asked Pakistan to drop the ambiguity in its nuclear program. Inaugurating the conference, the Pakistan's foreign minister, Sahabzada Yaqub Khan, said that bilateral agreement between India and Pakistan not to attack each other's nuclear facilities will be helpful in bringing mutual trust and confidence.

9274

## UPPER HOUSE PASSES BILL ON NUCLEAR POWER BODY

Bombay THE TIMES OF INDIA in English 4 Aug 87 p 8

[Text]

**N**EW DELHI, August 3: The Rajya Sabha today passed a bill to enable the government to set up a nuclear power corporation or a company to run atomic power stations in the country.

The corporation or company would be in a position to raise its own resources and provide greater operational flexibility for implementing the programme for installing 10,000 MW generating capacity by 2000 AD.

The bill was passed after a brief discussion in the absence of almost the entire opposition, barring the AIADMK.

Replying to the debate, the minister of state for science and technology, Mr K. R. Narayanan, said the government had taken every precaution to eliminate dangers inherent in nuclear energy.

A national emergency response committee had been constituted to create public awareness about the dangers from atomic power. It had already met twice. Similar committees had been set up at the regional level in Maharashtra, Tamil Nadu, Karnataka and Gujarat.

Mr Narayanan said there was no technical difficulty in achieving the target of nuclear power generation. Only the finance was lacking. The government company or corporation would be able to raise resources and would not require government money after 1994. It would also be able to make profit by laying down a new rate structure.

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CSO: 5150/0190

## PARLIAMENT APPROVES BILL ON NUCLEAR POWER AGENCY

51500006 New Delhi PATRIOT in English 28 Aug 87 p 5

[Text]

Parliament on Thursday gave approval to the atomic energy (amendment) bill enabling the Government to set up a nuclear power corporation or a government company to design, construct and operate nuclear power stations, reports UNI.

Replying to the debate on the bill, Minister of State for Science and Technology K R Narayanan told the Lok Sabha that such a corporation or company was essential to achieve the target of 10,000 mw of installed generating capacity of atomic energy by 2000 AD.

Referring to the apprehensions expressed by several members about the safety of nuclear plants, the Minister said modern safety technology was used in Indian reactors which were among the best in the world. Moreover, these reactors were manned by very competent and highly qualified personnel, he added.

Every possible step was taken to prevent ill-effects of nuclear accidents, Mr Narayanan said. Several organisational measures, including setting up of two committees, have been taken to prevent any accident, he added.

The perspective plan for the production of 10,000 mw of nuclear power was feasible provided finance was available, he said. By 1995 four more nuclear power plants would become op-

erational, he added.

Though the government was taking steps to tap all sources of energy, there was no justification for not going for atomic power, he said. Coal reserves and water resources were limited, he pointed out.

The Rajya Sabha had passed the bill on 3 August.

Syed Shahabuddin (Janata) said unnecessary mystery had shrouded the activities of the Atomic Energy Commission. Monopoly in any field hides inefficiency. The bill was most welcome as it would end this monopoly. He urged the government to ensure that efficiency, productivity and accountability were assured in the proposed corporation.

Mr Ram Singh Yadav (Cong) spoke of the perennial problems of the Rajasthan atomic power plant saying it had not generated any power for the last three years and had caused considerable hardships to the people in the State. He also wanted to know why the government had turned down the Soviet offer of setting up nuclear reactors in India.

Mr K R Natarajan (AIADMK) advocated that India should go nuclear as Pakistan had already done so. He wanted more atomic plants to be set up in the country to achieve the target of 20,000 mw of power generation by the turn of the century.

## DANGERS OF NUCLEAR WASTE FROM KERALA PLANT NOTED

Bombay THE TIMES OF INDIA in English 9 Aug 87 p 6

[Text]

TRIVANDRUM, August 8  
(UPI).

**T**HE disposal of toxic radioactive waste in the Arabian Sea over decades by a Central government plant in Kerala is now being linked by environment protection groups to an increasing incidence of cancer in the state.

The groups are campaigning against the Indian Rare Earths Ltd. (IRE) which has monopoly rights over the world's largest deposits of radioactive sands with its functioning shielded by secrecy clauses in the Indian Atomic Energy Act.

Led by prominent citizens such as the former chief minister, Mr Achutha Menon, and Mr Justice V. R. Krishna Iyer, the groups—chiefly the Media Collective and the Anti-pollution Forum—are backed by authoritative research and a documentary film on the subject.

A two-year study guided by professors from the Jawaharlal Nehru University, New Delhi, and the Calicut Medical College has turned up evidence that since 1953, thousands of tonnes of toxic radio-nuclides have reached the sea from the IRE plant at Alway in Ernakulam district.

The research leader, Mr V. T. Padmanabhan, alleges that during the 60s, 3,000 odd tonnes of the uranium and their derivatives were actually dumped in barrels ten km off Cochin possibly contaminating coastal marine life, Kerala's chief protein source.

The dumping stopped after the Central Marine Fisheries Research Institute at Cochin detected radio-nuclide contamination in fish specimens but the groups allege that radioactive effluents continue to flow into the sea through the Periyar river.

While radioactive elements occur naturally, the processing for rare earth chlorides, IRE's main product, involves their pulverisation and concentration making them ingested by marine fauna which then accumulate them in their bodies.

Caught between a slowly awakening public and piling radioactive waste, the management began burying the stuff within the plant's compound in concrete barrels—though not before fighting off a challenge in court by local residents.

After some 5,000 barrels were inserted, new possibilities began to loom large. For one, the plant neighbours a fertiliser factory which has been leaking sulphuric acid into the surrounding soil for 40 years.

Officials of the factory, owner of the Fertilisers and Chemicals, Travancore, have warned that the sulphuric acid could eat into the concrete while IRE workers are on record as saying that many of the barrels are already damaged from mishandling.

However, a greater danger seems to be posed by some 16,000 tonnes of toxic hydroxide stored for decades in three silos and meant to fuel India's once ambitious fast breeder reactor programme, now suspended.

One of the silos, built more than 20 years ago, has developed deep cracks and stains left by leaking hydroxide.

The Periyar itself has become prone to flooding and silting ever since the commissioning of the Idukki hydro project, further upstream, making the area around the plant prone to water-logging, according to a department of environment report.

The groups claim that the silo has begun to settle into the weakened earth under the weight of the

thorium, one of the heaviest elements, while the IRE management has announced that "periodical evaluation of structural integrity is being conducted by competent authorities."

Clearly any leak from the silos or the barrels into the river would render the entire hinterland uninhabitable. Thousands in the thickly populated area would be affected by cancer, genetic damage and other ill effects of radiation, in a worse-than-Chernobyl scenario.

Already the population in the nearby Chavara Neendakam beaches where the minerals are extracted and concentrated shows marked susceptibility to "Down's syndrome" (Mongolism), a genetic disorder, says a limited study by the All-India Institute of Medical Sciences.

At the same time, studies conducted over ten years by teams of genetic experts from the department of atomic energy which controls the plant have failed to reveal the reports—a fact regarded as highly suspicious by the groups.

Meanwhile, the Regional Cancer Centre (RCC) here says that the terminal cancer rate in Kerala is twice the national rate and is rising. Ominously, the IRE plant has been in operation for 30 years—the average latency for radiation-induced cancer to develop.

#### STAFFS HEALTH

The RCC also has chilling statistics projecting from ten to 25 per cent the rate at which cancer will account for all deaths in the state

in the coming years. It has begun an insurance scheme called "cancer care for life," on payment of Rs. 101 per individual.

But the worst abuse by the IRE management seems to be on its own staff of 500 workers among whom the susceptibility to cancer is seven times the national average, according to a study by Mr Padmanabhan published in "The Economic and Political Weekly."

A recent film "Living in Fear", produced by the Media Collective Group and directed by K. P. Sasi documents vividly the case histories of several IRE workers who have had congenitally deformed children born to them.

The film shows that the only protective gear provided to the workers is rubber gloves, ineffective against radiation.

For Mr Padmanabhan, Sasi and the environment groups, the worst hurdle in their efforts has been the Indian Atomic Energy Act of 1962 which, among other restrictions, prohibits independent enquiries into the health status of employees of the department of atomic energy.

The act has enabled the management to largely ignore the severe charges levelled against it and remains unanswerable to controlling agencies at the state level such as the inspectorate of factory safety.

But the groups are undaunted and their demand for action is supported by the powerful fisheries lobby which exports Kerala's famed marine products, consignments of which are beginning to be returned because of a contamination scare.

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CSO: 5150/0191

## BHABHA THORIUM PLANT TO CLOSE, NEW PLANT FOR ORISSA

51500005 Bombay THE TIMES OF INDIA In English 27 Aug 87 p 3

[Text]

BOMBAY, August 26.

AS a prelude to the proposed closure of the thorium plant at the Bhabha Atomic Research Centre complex here, the board of directors of the government undertaking, Indian Rare Earths Ltd., (IRE) will consider an "attractive" proposal of voluntary retirement for the employees, at a meeting on August 29.

Though a decision has already been taken to set up a new thorium plant in Orissa, the Bombay plant will continue to function until the new plant achieves full production, and this will take at least five years from now.

About 200 employees who will be affected by the shifting of thorium plant have been vehemently opposing the move, but in vain. The department of atomic energy (DAE), which took a policy decision two years ago to shift all commercial activities from BARC, does not find any convincing reason to rescind its decision now and retain the plant in Bombay.

The workers' union and the management of IRE had a meeting with the chairman of the Atomic Energy Commission, Dr M. R. Srinivasan on June 3 this year where an assurance was given that the interest of the workers would be fully protected. The only

ground objection for shifting the unit so far has been based on the plight of the workers, while a variety of other reasons strongly justified the proposed new plant at Orissa, according to a spokesman for IRE.

The site at Orissa has its own infrastructural facilities like boiler house, workshop and so on. Similar facilities in Bombay need not be created again for the new thorium plant and thus the overhead costs would come down.

While technical and economic considerations favoured the new site in Orissa, yet another aspect is the expanding activities of research and development at BARC which need space. The exigencies of nuclear technology now called for more research reactors and associated services. To make room for them, purely commercial activities had to be shifted to new places.

A spokesman for IRE today told "The Times of India" that the government would pay a lump sum compensation ranging from Rs. 85,000 to Rs. 1.50 lakhs to the workers who seek retirement. If they want deferred payments, 50 per cent of their pay dearness allowance and other eligible allowances will be paid till the date of their scheduled superannuation. Those who wanted to continue in service will be absorbed in other units of IRE or of DAE.

## EXPORT OF REACTORS, HEAVY WATER TECHNOLOGY POSSIBLE

Hong Kong AFP in English 1038 GMT 20 Aug 87

[Text]

New Delhi, Aug 20 (AFP) — India would start exporting nuclear reactors and heavy-water technology in a few years, the chief of the country's main nuclear research centre was quoted as saying here Thursday. India had already received requests for reactors and heavy-water technology from some countries, the *Press Trust of India* (PTI) reported, quoting P.K. Iyengar, director of the Bhabha Atomic Research Centre in Bombay. Dr. Iyengar did not say which countries had made the requests but said the 235-megawatt nuclear reactor developed by Indian scientists would be best suited to the needs of developing nations.

India, which exploded a "peaceful" nuclear device in 1974, has one of the most advanced nuclear-power programs in the developing world. The avowedly peaceful program is targetted at producing 10 percent of all power generated in India by the turn of the century.

Dr. Iyengar told a group of science writers that the research centre had the capability to make a nuclear bomb, but denied reports that a rare earths plant set up near Mysore, southern India, was a "bomb factory," PTI said.

India's five nuclear reactors and one research reactor were safe, and the Dhruva research reactor at Trombay, near Bombay, was so safe that a radiation release would not go beyond surrounding hills even if it was bombed, he said. Dr. Iyengar said Indian scientists were working on developing special casks to store radioactive wastes for up to 30 years.

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CSO: 5150/0193



## EDITORIAL SCORES 'ABSURDITY' OF ARMACOST PROPOSAL

New Delhi PATRIOT in English 6 Aug 87 p 4

[Editorial]

[Text]

US Under-Secretary of State for Political Affairs Michael Armacost was obviously not just delivering a harmless homily when he suggested an Indo-Pakistan nuclear non-proliferation treaty, even while making disapproving noises about Islamabad not helping uphold "our policy and our laws" in this regard. There should be little doubt that the former proposition was the substantive portion of the statement and the latter merely a ritual incantation. The whole sordid story of American bounties being showered on its favourite military regime in contravention of the Symington Amendment is as well known as Washington's unrelenting efforts to make India fall in line with its unabashed nuclear hegemonism and US overlordism in South and South-West Asia.

The suggestion is the more notable for its patent absurdity. Just what prompted it? How on earth did the US official presume to come out with it so soon after his visit to India, whose views on the subject must have been made unambiguously clear? This country's staunchly principled opposition to the idea of the nuclear non-proliferation treaty as blatantly discriminatory needs hardly to be dwelt upon at length. Its campaign for nuclear non-proliferation, instead, by nuclear-weapon States has not been conducted in secrecy. It has also repeatedly declared its own preference for development of nuclear energy for peaceful purposes and refused to deviate from this path despite grave provocations, though it cannot afford to foreclose its options. Nothing has happened to warrant any change in the Indian stand. What do Mr Armacost and his mentors hope to gain by advancing the rather ludicrous

proposal? Especially, considering that a Pak-India non-proliferation treaty does not become any less unacceptable on the grounds on which India has rejected the global version? The proposition has, of course, from the Reaganite viewpoint, the merit of embodying the neo-imperialist objective of restricting India to a regional, South Asian status and thus curtailing its broader role. It also serves the purpose of the same quarters by equating India with Pakistan that has achieved nuclear-weapons capability with the none-too-covert aid and abetment of the crusaders for nuclear non-proliferation. Neither of these features, however, could have been expected to endear the idea to India to any degree.

The conclusion would appear inescapable that the suggestion has been made because its authors hope for a change in the Indian response. Is it Mr Armacost's presumption, and that of the regime he represents, that there is greater readiness in New Delhi now to consider a compromise on this issue involving vital national interests? The call for a 'regional' NPT would seem, in other words, to be a blatant attempt at blackmail. Its indignant rejection is the only conceivable response from independent nonaligned nation.

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CSO: 5150/0192

## BRIEFS

REACTOR SAFETY ASSURED--New Delhi, Aug. 20--The Dhruva nuclear reactor in Trombay is so safe that even if bombed, the radiation release will not go beyond the hills, according to Dr. P.K. Iyengar, Director of the Bhabha Atomic Research Centre. Speaking to members of the Indian Science Writers Association here on Wednesday, Dr. Iyengar said Indian nuclear reactors had several in-built safety measures. After the Chernobyl incident in the Soviet Union two committees had been set up to reassess the working conditions of Indian nuclear reactors and their findings suggested no cause for any fears, he said. [Text] [51500008a Madras THE HINDU in English 21 Aug 87 p 7] /7358

NUCLEAR TECHNOLOGY ADVANCES--Pune, August 18: The Indian nuclear programme is poised to establish 10,000 MWe capacity of pressurised heavy water reactor (PHWR) by the turn of the century, according to the former chairman of the Atomic Energy Commission, Dr Raja Ramanna. He was speaking yesterday on "Atomic Energy: the perspective for the 21st century" at the University of Pune while delivering the R. S. Dubhasi Memorial Lecture arranged by the Board of Extramural Studies. He said that necessary research and development infrastructural facilities have been established in the country in all aspects of the fuel cycle towards achieving the programme. He added that the recent commissioning of the fast breeder test reactor at Kalpakkam marked the beginning of our efforts to master fast-breeder technology which would be needed early in the next century to help achieve a rapid growth rate of nuclear capacity. Meanwhile, work on various aspects of the thorium fuel cycle has also commenced, he said. [Text] [51500008b Bombay THE TIMES OF INDIA in English 19 Aug 87 p 15] /7358

WEAPONS PRODUCTION DENIED--Bombay, August 14: Dr M. R. Srinivasan, chairman of Atomic Energy Commission (AEC), today said that the Rare Materials Plant at Ratanahalli in Karnataka was not meant for the production of nuclear weapons. Discounting reports that the plant was meant to produce enriched bomb-grade uranium, Dr Srinivasan said that the facility produced lithium and gadolinium, which are "control materials" (moderators). He was speaking at a lecture on "Nuclear Technology is safe and relevant for India's development" organised by the Economic Research and Training Foundation of the Indian Merchants' Chamber here. The country's nuclear energy programme had moved from a "demonstration scale" to an "industrialised scale." In addition to the 1,000-MW operational capacity at present, reactors for another 1,000-MW power production were under various phases of construction at Narora and Kakrapar, he said. [Text] [51500008c Bombay THE TIMES OF INDIA in English 15 Aug 87 p 5] /7358

RAJASTHAN PLANT--Jaipur, Aug 11--The first unit of the Rajasthan atomic power project (RAPP) resumed power generation on Sunday evening. Currently the unit is producing 100 MW power. The unit had stopped generating power since July 13 owing to a station fault. [Text] [Madras THE HINDU in English 12 Aug 87 p 1] /9317

AEC CHIEF'S DENIAL--New Delhi, August 6 (PTI)--The chairman of the Atomic Energy Commission, Dr M.R. Srinivasan, today categorically denied having said that India has a "comprehensive programme" on making a nuclear bomb. "He has not only been incorrectly reported, but also has been misquoted," an official denial issued here said. The official press release explained that what Dr Srinivasan actually had said at a function in Bombay was that "India has developed comprehensive capability in the field of nuclear energy and this has been directed towards peaceful applications right from the beginning." [Text] [Bombay THE TIMES OF INDIA in English 7 Aug 87 p 9] /9317

CSO: 5150/0194

**PRIME MINISTER AFFIRMS 'PEACEFUL' NUCLEAR PROGRAM**

**BK241626 Karachi Domestic Service in English 1600 GMT 24 Aug 87**

[Text] The prime minister, who is also president of the Pakistan Muslim League, inaugurated the office of Sind Muslim League in Karachi this evening.

Speaking on the occasion, he reiterated his government's resolve to develop nuclear technology to meet the country's growing energy requirements.

He said Pakistan's nuclear program is entirely for peaceful purposes and denied assertions by the Indian leaders that Pakistan is engaged clandestinely in developing a nuclear device.

Mr Mohammad Khan Junejo made it clear that Pakistan will never secretly make a nuclear bomb. It will, however, develop nuclear energy to the extent of fulfilling its requirements.

Referring to India's explosion of a nuclear device in 1974, he said it was a clear case of misuse of nuclear facilities provided by some Western countries exclusively for peaceful uses. He declared that Pakistan will not deceive its friends.

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CSO: 5100/4760

PAKISTAN

NEAR EAST & SOUTH ASIA

NOORANI REITERATES STAND ON ATOMIC PROGRAM, DRA

BK280446 Karachi Domestic Service in Urdu 0200 GMT 28 Aug 87

[Text] Minister of state for foreign affairs, Zain Noorani, has said that Pakistan will not accept one-sided and biased controls over its peaceful atomic program, and that this will not be accepted as a condition of U.S. assistance. In an interview in New York yesterday he said: We are enriching uranium in very small quantities, meant only for peaceful purposes. He said Pakistan is ready to provide a solid assurance that its atomic program is peaceful and its objective is not to make atomic weapons. He said if India, which has detonated an atomic device, permits inspection of its atomic installations, then Pakistan is also ready for inspection of its atomic installations.

On the issue of Afghanistan, the minister of state said the process of UN-sponsored Geneva talks is almost complete except for determining a timeframe for the withdrawal of Soviet forces from Afghanistan. He said no date has yet been set for the next round of Geneva talks. Pakistan wants a (?careful) preparation for the next round [of Geneva talks] so that it may yield results.

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CSO: 5100/4761



## YAQUB KHAN REAFFIRMS POSITION ON NUCLEAR ISSUE

51004762a Karachi Overseas Service in English 0800 GMT 1 Sep 87

[Text] The foreign minister, Sahabzada Yaqub Khan, has reiterated that Pakistan is against the spread of nuclear weapons in South Asia. It is prepared to accept any equitable proposal that converts unilateral statements into a binding multilateral obligation. He was addressing in Islamabad this morning an inaugural session of a 2-day International Conference on Nuclear Nonproliferation in South Asia.

The foreign minister said Pakistan was prepared to contribute its share to any endeavor to avert such a danger in the region in order to save the region from nuclear arms race. He told eminent scientists and experts of nine countries including, four representing SAARC states, that Pakistan was committed not to develop nuclear weapons. He said Pakistan was convinced that a regional agreement on nonproliferation was the only alternative that could respond to the legitimate security concerns of all the states of South Asia and contribute to strengthening global peace and security.

## ISLAMABAD NUCLEAR NONPROLIFERATION CONFERENCE ENDS

51004762c Karachi Domestic Service in English 1600 GMT 2 Sep 87

[Text] The 2-day international conference on nuclear nonproliferation has ended in Islamabad after making several recommendations to lessen the danger of nuclear proliferation. The recommendations included establishment of a nuclear-free zone in South Asia and commitment both by India and Pakistan not to strike on each other's nuclear facilities. The meet has also suggested greater response from the major powers toward fulfilling their obligations under the existing nuclear nonproliferation regime and nondiscriminatory approach toward nonnuclear states.

The participants of the conference noted that the Nuclear Nonproliferation Treaty does not provide any balanced sharing of obligations between nuclear weapon states and the nonnuclear weapon states. They also agreed that the International Atomic Energy Agency safeguards are not adequate and can be circumvented. They felt that more attention should be focused on the regional approach to nonproliferation of nuclear weapons.

In his concluding address at the conference, a former foreign minister of Pakistan, Mr Agha Shahi, said the present nonproliferation treaty lacks assurance of security by nuclear weapon states to nonnuclear states.

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## U.S. ATTITUDE ON NUCLEAR PROGRAM CRITICIZED

BK071127 Karachi DAWN in English 3 Aug 87 p 1

[Text] 2 Aug--Malik Mohammad Qasim, chief of Pakistan Muslim League [PML] has condemned the U.S. decision to stop Pakistan's military and economic aid to pressurise Pakistan to sign the nuclear Nonproliferation Treaty (NPT) unilaterally.

Addressing a press conference on Sunday [2 August], he asked the government to tailor its policies according to the wishes of the people of Pakistan.

He said the government is pursuing policies which were aimed at furthering the interests of U.S. and the people of Pakistan are suffering because of these policies.

The internal and external situation with which the country was faced were the result of these inept policies of the government, he added.

Malik Qasim noted that it was only Pakistan against which a political system is stabilised and safety of armed forces is ensured. He claimed that President Ziaul Haq was responsible for creating a gulf between the people and the armed forces. "We are not against the army as an institution but against President Zia, who was using the gun for perpetuating his own rule," he added.

Malik Qasim also expressed concern over the "virtual civil war" in Karachi in which, he added, police were killing the people and vice versa. He claimed that the people have no confidence in the government and it was because of this lack of confidence that clashes were being reported between police and public. People only cooperate with those governments which are their true representatives, he added.

Malik Qasim also advised the components of the political parties of the MRD to hold joint public meeting on 14 August, to celebrate the country's independence.

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CSO: 5300/4759

## PAPER SEES NEW U.S. THINKING ON PAKISTAN

BK131104 Delhi INDIAN EXPRESS in English 5 Aug 87 p 6

[Editorial: "A Better Awareness"]

[Text] For once the U.S. Congress has acted as if it has seen through the Pak nuclear game. Following the lead given by the Senate, the House of Representatives has also passed a unanimous resolution calling for an end to military aid to Pakistan unless it gives verifiable evidence that it was not seeking to produce weapons grade nuclear material. These resolutions are not binding. All the same, they are significant inasmuch as they indicate a refreshing reluctance on the part of U.S. legislators to swallow Pak propaganda on the nuclear issue wholesale. The latest disclosures about blatant Pakistani violations of the U.S. law on export of nuclear materials have forced the Congressmen to these resolutions. Hitherto, the Pakistanis have managed to disarm critics of their nuclear programme by making it out that Islamabad is only too willing to forswear development of nuclear weapons if only India, too does the same. By framing the issue in such terms, the Pak propagandists were able to divert the attention of the Americans from the fact that Islamabad was all along busy transgressing the U.S. laws, sometimes slyly, and more often openly. Pakistan's value as a strategic client has no doubt made many Americans highly susceptible to such subterfuge.

Even the U.S. administration seems now to be inclined to take a more critical look at Pakistani claims and assurances on the nuclear question. After his talks in Islamabad this week, the U.S. under-secretary of state, Mr Michael Armacost, for instance, said significantly: "Over the long term we believe that it is in the interests of both Pakistan and India to agree to nuclear non-proliferation in the sub-continent. But in the meantime, our policy and our laws must be upheld."

Pakistan of course has powerful patrons in Washington. They are well ensconced in the Pentagon. Such offences as violation of U.S. export laws have never worried them. They will try harder to see that thinking administration officials and congressmen do not upset their designs by denying or even cutting down the pledged military assistance to Pakistan. Witness, for instance, the certificate just given by the Washington-based publication DEFENCE WEEK that Pakistan will be an ideal site for the headquarters of the U.S. Central Command given the reluctance of Arab states to provide the U.S. with base facilities. It is such voices which Mr Reagan is given to heeding most. Therefore, while the resolutions of congress are important perhaps as pointer to the future, they do not settle the issue.

## NUCLEAR PROGRAM: U.S. 'PRESSURE' ANALYZED

Karachi DAWN in English 5 Aug 87 p 7

[Article by Sultan Ahmed]

[Text]

PAKISTAN is resisting the U.S. pressure not to acquire nuclear bomb-making capability as it is too discriminatory. It is discriminatory not only in the sub-continental context but also globally.

If it has been putting up with India's openly demonstrated capability for the last 13 years, Israel's capability is too well known, except that Israel does not publicise that, nor does the U.S. Press which is very supportive of Israel because of the strong Jewish connection. South Africa's nuclear capability and its collaboration with Israel are acknowledged facts, except that they have not been talking about what they have been doing, but we in Pakistan have been talking or bragging more than what we have been doing, and in the process invited so much opposition to it abroad, have paid a heavy price for that in terms of lost nuclear power, and have harmed our interests needlessly. The amateurism in this area has been excessive and far beyond permissible levels.

The U.S. which is now acting on behalf of the countries opposed to Pakistan acquiring nuclear bomb-making capability, is not content with Pakistan's official assurances that we shall not be making the bomb — let apart exploding that. Instead they want a binding commitment from us not to enrich

uranium to any level above that is required for civilian purposes, which is very low, and to refrain from any illegal procurement of materials that can be used for making nuclear weapons. That was the purpose of the visit of U.S. Under Secretary of State Michael Armacost, who had discussed the nuclear issue in Islamabad earlier as well.

Demand for the second commitment has arisen following the rumpus in the U.S. over the efforts of Mr Arshad Pervaiz to export to Pakistan the steel which can be used for making the bomb. Pakistan has denied any involvement in the deal. And the commitment sought now is too large as there are a large number of items which could be used for making the bomb as well as other bona fide industrial purposes. Secondly, even if Pakistan commits itself on both the scores, verification can be tough. In the case of enrichment of uranium, how does the U.S. make sure that we do not cross the low grade necessary for civilian needs, like power production, unless there is verification?

We may not know what exactly are the kind of commitments Pakistan has given and its U.S. interpretation until Mr Armacost reports back to the U.S. administration and the issue comes before the Congress, which has suspended economic and military aid to Pakistan for 105 days, ending January 15 next year.

Quite many are the countries which do not want Pakistan to have

the bomb-making capability. Besides the vocal and over vigilant India, which cries 'Islamic Bomb' to scare the West as often as it could, there is the Western Europe, Soviet Union and, of course, Israel. We may be facing the Soviet Union in Afghanistan arm in arm with the U.S., but when it comes to our nuclear capability both the super-powers have a clear commonality of interests. So the U.S. is acting on behalf of the USSR as well in this regard.

India has been exerting pressure on the U.S. to stop Pakistan's nuclear quest, and has been insistent about that. But on its own part India will not accept U.S. advice to sign the Nuclear Non-proliferation treaty (NPT) or to bring its nuclear installations under the full scope safeguard of the INAEA or to sign an accord with other States to bar nuclear weapons from South Asia. Pakistan is not agreeable to such a unilateral deal.

## Indian facility

Pakistan might not have sought such nuclear capability if India did not have that, and the Indian nuclear facilities were not expanding rapidly. Secondly, India has fought three wars with Pakistan, even if the Rann of Kutch operation is excluded. Military tension between the two neighbouring countries increase from time to time. And recently it was massive military build up in the Punjab and

Rajasthan in the name of the Operation Brass Tacks exercise, which heightened tension between them to explosive levels.

India goes on increasing its military expenditure and at 10 billion dollars its defence budget is more than the revenue and development budget of Pakistan together today. And it has been demonstrated that when war comes the Soviet Union is with India and supplies all the arms India needs at low prices, while the U.S. goes neutral and suspends arms deliveries to Pakistan. Recognising "the great importance of India" as Mr Armacost put it recently, the U.S. does not want to enrage India when a war starts. All we could get out of the pro-Pakistan Nixon Administration in 1971 was a much talked of 'tilt' but that 'tilt' did not prevent the separation of East Pakistan through blatantly military means by India.

It has been obvious to the discerning, right from 1954 when we tied ourselves with the U.S., that the U.S. wants us to fight or resist Communism, and will not help us against other aggression, particularly from the Indian side. Hence large number of elements in Pakistan want a nuclear shield. And even political leaders opposed to the Government, and not in favour of Pakistan making the bomb, are opposed to the kind of pressure exerted by the U.S.

But the U.S. could not have taken to the kind of arm twisting that it employs — earlier in 1979 by President Carter who suspended aid to stop us from making the bomb — if Pakistan had not become too dependent on U.S. aid, economic and military, and the governments and too many political parties had not

sought American political patronage.

Perceptive Americans do not dispute that the manner the U.S. anti-proliferation law is written is not fair to Pakistan, nor is it intended to be fair. As columnist Stephen Rosenfeld wrote in the "Washington Post" recently "The law was written to provide special dispensation to Israel and India, and to lock the barn door against the theft of a third horse. More broadly, it was written to buy time to head off a nuclear notch-up in South Asia."

So what the U.S. is seeking is to prevent a nuclear confrontation in the sub-continent by letting India to stay nuclear militarily, but not allowing Pakistan to develop a similar capacity. Mr Armacost argued recently that a nuclear arms race has to be checked in the region as there are no strong political ties between India and Pakistan to restrain hostile use of their nuclear arms. So if the reason why Pakistan wants a nuclear capability is as India has that, that is precisely the reason why the U.S. is stopping us.

Western writers also argue that Pakistan's bomb will be under very weak political control because of political instability in Pakistan. And they have not failed to mention that the last three wars with India were fought when the army was ruling the country and the generals get tempted to use the military means to settle disputes far more than civilian rulers. In contrast, it is stressed that both India and Israel have democratic systems.

We ought to realise by now that Pakistan can have an independent

nuclear capability only if it has a truly independent foreign policy. And for that we need a largely self-reliant economic policy, and far less waste or misuse of the economic resources. For such self-reliance we need a democratic and truly nationalistic regime which looks to its people first. If we are not prepared for such radical changes all round, our independent nuclear capability can be nominal and not substantial or adequate.

Some protagonists of the bomb say that Pakistan should announce from housetop that we have the bomb and nobody can stop us. But the issue is not only having one or more crude bombs fabricated after prodigious efforts, but also the possible nuclear race in the sub-continent. If Pakistan has the capability to make one bomb, India has the facilities and funds to make ten. Then the issue of a safe and sure delivery system will arise at a giddy cost.

Both India and Pakistan will then live in fear of who resorts to the first strike. And there will be fear-some rumours galore, particularly as Mr Rajiv Gandhi has declined to sign the agreement not to bomb each other's nuclear installations after he reached that accord with Gen. Zia in November. The bomb does not necessarily bring peace but an undependable balance of terror in the poor subcontinent with its billion people. So the U.S. Senate has urged President Reagan to pursue vigorously an agreement between India and Pakistan to keep South Asia free of nuclear weapons. As India will not agree, how far will the U.S. go in exerting pressure on Pakistan?



IAEA ANNIVERSARY NOTED, LAUDED

Kiev PRAVDA UKRAINY in Russian 29 Jul 87 p 3

[Article by N. Makarevich, collegium member and UkSSR Ministry of Foreign Affairs division chief: "IAEA: Noble Goals"]

[Text] Thirty years ago, on 29 July, 1957, the charter of the International Atomic Energy Agency [IAEA] became effective and thus, in Vienna, the capital of neutral Austria, this authoritative international organization began its own life and activities. One of the sponsors of its establishment was the Soviet Union. The UkSSR was also among the founding states.

At the present time the agency's membership consists of 113 states, including all the countries in which peaceful nuclear activities are being pursued. The agency's director-general since 1981 has been the Swedish political figure, Hans Blix, who heads up the secretariat which consists of nearly 2,000 associates, including Soviet citizens. The IAEA's highest body is the General Conference of the Member States, whose sessions are conducted annually.

The basic aims of the agency's activities are the exchange of scientific and technical reports on the use of atomic energy for peaceful purposes; technical assistance to developing countries in the elaboration and implementation of national programs for the peaceful use of atomic energy; scientific research work; the elaboration of safety standards and rules; and monitoring of the compliance of both nuclear and non-nuclear states with their obligations in accordance with the Nuclear Non-Proliferation Treaty (1968).

In the course of the 3 decades of its existence, the IAEA has achieved notable successes. The most widespread recognition was obtained by the agency's multifaceted activities aimed at preventing the spread of nuclear weapons throughout the planet. The obtaining or development [sozdanie] of such weapons by new countries would lead to an acute destabilization of the situation in the world, to intensification of the danger of local conflicts being converted into a global conflict and to an increase in the nuclear threat. It is not accidental that the world community, expressing an ever greater concern about the nuclear ambitions of such states as the RSA, Israel and Pakistan. The recognition of the danger with which the proliferation of nuclear weapons is fraught called into being in principle a new concept in international relations--the concept of a voluntary limitation on the number



of nations possessing such weapons. It is precisely this which served as the basis for the Nuclear Non-Proliferation Treaty--the most widespread agreement in the field of arms limitation based on the number of participants (there were 132 of them).

The IAEA has been entrusted with the function of monitoring the compliance of the treaty's participating states with the obligations they have assumed. The purpose of such monitoring is to prevent atomic energy being switched from peaceful applications to military purposes in non-nuclear countries. The agency has concluded an agreement about safeguards (monitoring) with nearly 80 non-nuclear states and is implementing safeguards at nearly 900 nuclear installations (this is more than 90 percent of such installations) in states which do not possess nuclear weapons. Monitoring is being expanded into countries with a developed nuclear industry such as the FRG, Japan, Italy and Canada. The USSR, the USA, Great Britain and France have voluntarily placed certain of their installations under the control of the agency. China has declared its willingness to place certain of its installations under the control of the IAEA.

The basic result of the effect of the treaty and the mechanism established on its basis, of which the IAEA is the core, lies in the fact that over the nearly 20 years it has been in effect, not a single new nuclear state has appeared in the world.

The agency is paying a lot of attention to the development of international cooperation in the field of nuclear engineering. As is well known, in connection with the depletion of the planet's mineral resources, searches are being conducted for new sources of energy. One such source is nuclear engineering, the technology of which is based on abundantly available energy. Today in the world there are more than 370 atomic reactors operating and they provide around 14 percent of all the produced electric power and, by the year 2000, this figure will amount to 20 percent.

The more than 30-years experience in the operation of nuclear power stations in many countries of the world has demonstrated their viability, economicalness and ecological cleanliness. The designers and the engineers, the developers of the atomic reactors, provided for all the protective measures necessary in their opinion. Yet, all the same, it has not been possible to avoid accidents. Yes, under the conditions of the exploitation of nuclear energy, man encounters the danger of terrible forces getting out of control. Throughout the world, more than 150 accidents at nuclear power stations involving the escape of radioactivity have already been recorded. Several of these accidents--in the USA, the FRG, England and, finally, in our country at Chernobyl--were of a highly serious nature, led to serious consequences and inflicted economic and psychological damage. The elimination of such accidents requires rapid and responsible decisions and joint efforts not only of states but also of international organizations and institutes. A leading role here belongs to the IAEA.

The Soviet Union promoted within the agency a program for the establishment of an international procedure for the safe development of nuclear engineering, which received widespread approval throughout the world. The world community,

with a feeling of deep satisfaction, welcomed these measures adopted within the framework of the agency for the establishment of the bases for such a procedure, in particular, the elaboration and adoption within brief time frames of conventions on notification and on assistance in case of nuclear accidents, their signing by a significant number of states and their becoming effective. This is proof of the fact that in Vienna a new approach to the establishment of mutual understanding, trust and openness in relations between states has triumphed. In its own resolution on the IAEA report, the UN General Assembly noted with satisfaction the useful and effective activities of the agency in the establishment of the bases for an international procedure for the safe development of nuclear engineering.

The IAEA considers one of its own tasks to be the rendering of assistance in setting up international cooperation in those fields of the peaceful use of atomic power where the efforts of the individual states in the solution of the largest problems are inadequate. On the initiative of the USSR, a mechanism for the international study of the problems of controlled thermonuclear fusion has been established, a conceptual draft for a thermonuclear reactor has been prepared and practical steps for the realization of this idea are being discussed.

The Soviet Union and the other socialist countries support the IAEA and are actively participating in its work.

The UKSSR is also making a positive contribution to the agency's activities. Together with the other socialist states, it has repeatedly come out with constructive initiatives aimed at fortifying the role of the agency in the matter of the strengthening of the procedure for the non-proliferation of nuclear weapons and the prevention of the use of atomic power for military purposes and for the further development of international cooperation in the field of the peaceful use of atomic power.

The scientific and technical cooperation between the Ukraine and the IAEA is being successfully developed. The UKSSR Academy of Sciences' institutes are participating in the fulfillment of research contracts for agency programs and in the international exchange of information on nuclear science and technology within the framework of the existing international system. An important aim of the UKSSR's participation in the IAEA's activities is the assistance in providing technical help to developing countries interested in the peaceful use of atomic energy.

The nuclear age requires the joining of the efforts of states with different social systems in the name of the safe development of nuclear engineering, the stopping of the arms race and the radical improvement of the world's political climate. The Soviet Union and all the socialist countries support the IAEA's activities, which are an example of the optimum correlation of national interests with the interests of humanity in general. They are promoting the further increase in the role and significance of this organization in the modern world so that it would henceforth be devoted to the matter of the development of international cooperation in the field of the peaceful use of atomic energy for humanity's welfare and progress.

[signed] N. Makarevich, collegium member and UKSSR Ministry of Foreign Affairs division chief.

## CHINA MAY REPROCESS SPENT FUEL IN EXCHANGE FOR FRG REACTORS

51002458 Frankfurt/Main BLICK DURCH DIE WIRTSCHAFT in German 23 Jul 87 p 2

[Text] Nuclear business is beginning between China and the FRG. Since Premier Zhao Ziyang agreed on cooperation at the time of Federal Chancellor Kohl's visit to Beijing, the way seems open to the planned delivery of nuclear reactors by the Kraftwerk Union AG (KWU). In exchange, China will supply crude uranium. Beijing also offered the Germans a compensation transaction, involving the acceptance of spent nuclear fuel rods for reprocessing.

Still, well informed sources in Beijing emphasize that the acceptance of spent reactor fuel elements is not yet ready to be finalized. A senior official of the Chinese Society for Nuclear Industry (CNEIC) in Beijing said that no decision on terms had been taken. Asked about final disposal in the enormous desert region of China's extreme northwest, he was quite specific: "China is not a waste dump." It was out of the question for China to accept radioactive waste.

China is interested in radiated fuel elements suitable for reuse. In a course of a confidential meeting, Beijing officials did not conceal their intention to reprocess the material and their expectation of German assistance with the complicated and expensive procedure. They also pointed out the "strategic importance" of the acceptance of radioactive materials. Reprocessing allows plutonium to be produced, and this in turn permits the manufacture of nuclear weapons.

According to the experts, the Chinese are quite backward still with respect to reprocessing techniques. Chen Zhanghe, the competent department head in the Ministry for Nuclear Industry, said that China had the capability for reprocessing, and that appropriate facilities were available. Other official spokesmen mentioned that reprocessing "research is going on," and facilities are in the planning stage." Already in 1984 China had offered to accept spent fuel elements from foreign nuclear power plants.

Chinese plans pinpoint the Taklimakan Desert in Xinjiang autonomous region for the final storage of radioactive materials. The precise location is a state secret. The material is to be stored underground, and it has not yet been decided whether to package the waste in glass, asphalt or cement containers. While the population in this desert region in the far west of the country is

very small, the Beijing Seismological Office confirms that it is subject to major earthquakes. Five minor earthquakes have already occurred this year.

The structure of the loam, clay and salt desert tracts located between the enormous sand and rock deserts appears suitable for storage.

By comparison with the advanced western industrial countries, experts consider backward the development of Chinese civilian nuclear industry. So far there are only 10 small test reactors in China and not a single nuclear power plant in commercial use for electricity production. Nothing is known about actual final disposal.

11698

## RADIOACTIVITY AT RHINE WASTE SITE EXCEEDS LIMIT 17-FOLD

51002458 Frankfurt/Main FRANKFURTER ALLGEMEINE in German 25 Jul 87

[Text] The city of Karlsruhe's Industry Supervisory Office has ordered the immediate removal of a waste dump in the Rhine port, that contains radioactive waste. According to the Karlsruhe administrative district, this step is warranted because radioactivity measurements have disclosed that legally admissible radiation limits are being exceeded. The dump in question is a temporary storage site of the Gesellschaft fuer Nuklear- und Umwelttechnik (GFN) [Nuclear and Environmental Equipment Company]. The GFN temporarily stores in the Rhine port four containers of slightly radioactive waste--including tools and packaging materials from nuclear plants. Last week, the Green fraction in Karlsruhe city council protested the "largely unsecured" temporary nuclear waste dump. Measurements had shown that the 150 millirem admissible limit was being exceeded 17-fold.

A Green city councilor entered a criminal complaint against GFN and the owner of the nuclear waste dump site. The company official in charge of radiation protection announced that his firm would appeal the removal order to the Office for Industry Supervision and approach the Karlsruhe Administrative Court in the matter. Though he confirmed the agency's measurements, he said that the GFN had talked to a staff member of the Office for Industry Supervision in early July. At that time GFN had offered for safety reasons to place the containers in the center of the dump instead of at the periphery as had been done before. In addition the firm had been ready to erect concrete walls around the containers. The official had said that the permit for storage would in that case be continued. The removal order now issued contradicted this promise.

11698



## TAEC HEAD SEEKS TO ALLAY FEARS OF RADIATION-CAUSED DEFECTS

Istanbul CUMHURIYET in Turkish 7 May 87 p 15

[Text] Ankara--Head of Turkish Atomic Energy Commission (TAEC) Dr Attila Ozmen pointed out that the high radiation content found in the soil should not be cause for worry, savings, "The important aspect is the radiation actually present in the food." Commenting upon fears of radiation-caused birth defects, Dr Ozmen said it is difficult to assert categorically at this point whether there could be birth defects or not.

TAEC head responded to AA correspondent's questions concerning high radiation content found in the soil in the Black Sea region, and fears of birth defects. Referring to a German expert's measurements in the Black Sea region and his finding of excessive radiation in the soil, Dr Ozmen said:

"I talked to that German expoert myself. His figures do indicate the presence of radiation in the soil. We have commissioned similar studies. During the last month we have been collecting samples from various places to monitor radiation levels. The soil samples are being analyzed in laboratories. The figures given (by the German expert) can be true so far as the soil is concerned. But it should not be cause for worry. What is important is the radiation actually present in foodstuffs."

#### No Danger

Dr Ozmen declared that the magnitude of soil radiation did not constitute "much of a danger" so far as agricultural activity was concerned. "Everything is under control. Relevant authorities will be alerted as soon as danger signal is received. We cannot play games with human health." He went on to say:

"Radiation measurements of soil samples have been conducted at our Kucukcekmece labs. Our teams have been collecting samples in the Black Sea region for a month now. We are also conducting a comprehensive field survey so far as tea and hazelnuts are concerned, and their soil basins."

#### Birth Defect Issue

Concerning stories in the press about birth defects attributed to radiation, Dr Ozmen had this to say:

"A year is not a sufficient time period to have conclusive evidence. It is not possible to confirm or deny. It needs research covering a number of generations. There are a number of studies on the subject--studies conducted on Hiroshima and Nagasaki survivors and their progeny to see whether there have been genetic defects. They are the people subjected to the greatest dose of radiation in history."

In all, five radiation measurement machines had been imported--two fixed and three mobile. "We will install one of the permanent machines in Kucukcekmece and the other in Ankara. And the mobile equipment will be traveling across the country to take measurements," the TAEC head said.

#### No Danger in Tea

Responding to a question whether the new tea crop contains radiation or not, Dr Ozmen said: "We have certain estimates. There will be some radiation but certainly not high enough to be dangerous. We expect somewhere around 1,000-1,500 becerels."

Meanwhile, according to information received by AA, the International Commission for Protection from Radiation has declared that a person can tolerate up to 4.5 million becerels of radioactivity during 1 year from foodstuffs containing radio-isotope of sezium. And that means 12,329 becerels per day. Turkish experts maintain that a person drinking 1 liter of tea every day (made from tea leaves with 1,500-2,000 becerels) would be exposed to no more than 160-170 becerels a day.

12466

CSO: 5100/2451



TURKEY

WEST EUROPE

RADIOACTIVE TEA STILL IN STORAGE

51002461 Istanbul MILLIYET in Turkish 20 Jul 87 p 8

[Article by B. Sitki Alaz: "Radiation Contaminated Tea"]

[Text] Trabzon (MILLIYET NEWS SERVICE) - Reaction is growing to the failure of CAYKUR [Tea Producers Corporation] to do anything to date about destroying the 45,000 tons of highly radioactive dried tea from the 1986 crop still in storage and to letting this tea sit in the warehouses. Some private-sector firms say that the radioactive tea in CAYKUR inventory must be destroyed as soon as possible, otherwise the consumer will have a right to be concerned.

Rumors have circulated recently that the tea would be buried in an empty field in eastern Anatolia, and the private firms' authorities said they were unhappy about the possibility that certain pirate firms would hijack the tea while it was in transport or waiting in the warehouses. They said:

"A pirate firm would not be concerned about human health. If they got the tea, they would package it and put it on the market regardless of contamination. For this reason, the only solution is to mark the radiation contaminated tea in the warehouses by dyeing it or pouring motor oil on it against the possibility of its being stolen during shipment or while in storage."

8349

## PANEL MAKES ANNUAL REPORT ON RADIOACTIVE WASTE

51500001 London THE DAILY TELEGRAPH in English 2 Sep 87 p 4

[Article by Roger Highfield, Technology Correspondent]

[Text] **BRITAIN'S** main low-level nuclear waste dump in Drigg, West Cumbria, may run out of room, independent Government advisers said yesterday.

Because of a recent change in Government waste disposal policy, which delayed plans for a new site for low-level waste in 1995 until 2001, and a greater than expected amount of such waste, "there will be increased pressure on existing sites, particularly Drigg," Prof John Knill, of Imperial College, said yesterday.

Prof Knill is the new chairman of the Radioactive Waste Management Advisory Committee, which produced its eighth annual report.

He called for the nuclear waste agency, UK Nirex, to find a new site so that "it comes on stream well before 2001."

**In concrete**

"There is a physical limit to the size of Drigg," he said. At present, waste is being disposed of by its operator, British Nuclear Fuels, in open trenches, but a large part of the 300-acre site has a deep accumulation of peat which is unsuitable for this form of disposal.

To add to Drigg's problems, estimates of the amount of low-level waste produced during the next 25 years have risen by one third to half a million cubic metres, when compared with estimates made in the last annual report.

Much of the increase has come from the large amounts of material designated as low-level waste being excavated at Sellafield in the construction of its new reprocessing plant, Thorp.

The committee is "close" to being consulted on the renewal of the authorisation for Drigg, which Prof Knill said could operate until 1997 or even 2015 if a new disposal method were used—for instance, if the waste was packaged in concrete.

In its report, the committee again expressed its dismay that it had not been consulted before the Government announced on May 1 that it had decided to abandon the search for a shallow waste repository and would instead concentrate on a "multi purpose" deep site for low and intermediate-level waste.

The move meant that useful geological data, which was being gathered for the shallow site investigation, had been lost, which was "deeply regretted" by the committee. This information would have been of use in the current search for a deep site, he said.

The committee was also concerned that the decision had been made on economic, rather than radiological grounds, at variance with what are called the "best practicable environmental options" which emphasise the environmental impact.

The committee would not take part in the final selection

of the site, but in the discussion leading to the decision, he said. In the next few months it would debate with UK Nirex the selection criteria.

At a meeting in July with Ministers and UK Nirex, the committee spelled out its concern about Drigg and received assurances "that the Government greatly valued the advice of RWMAC...there was an important future role for the committee".

The report calls for better communication with the public when they require information on the effects and risks of low-level radioactive waste disposal.

Prof Knill said it was important that releases of radiation should be expressed in terms of the natural background, to help people to "appreciate the very small amounts of releases we are talking about."

He said that the effects of the accident at Chernobyl "highlighted the need for an effective and adequately deployed monitoring system."

A spokesman for British Nuclear Fuels said the company was confident that Drigg would operate until 2015 because it would be using new techniques to make low-level waste up to seven times more compact and would also use new concrete-lined trenches in a £13million programme of improvements to the site.

Radioactive Waste Management Advisory Committee, Eighth Annual Report, September 1987, HMSO £5.70

## BRIEFS

**DANGER TO WORKERS**--The risks of developing radiation-linked cancer are five times higher than official estimates, it was claimed yesterday. Workers at nuclear power stations face more danger than almost any others, matched in risk to life only by deep-sea trawlermen. The claims were made by leading academics and Friends of the Earth, the environmental group, at the launch of a book called Radiation and Health. Dr Robin Russell-Jones, co-author of the book and chairman of the Friends of the Earth pollution advisory committee, called for an immediate review of the safety of low-level radiation. "Estimates of radiation risk were made 10 years ago," he said. "Now more research has shown that the risk is much greater. He urged the International Commission for Radiological Protection to lower the maximum safe exposure levels. Dr Russell-Jones told a London press conference: "Low level ionising radiation has a particularly strong effect on children and pregnant women. So if you live near a nuclear power station, or work in one, you are at greater risk. "This is not an academic debate. The risk of radiation-induced cancer is five times what the ICRP are prepared to admit." [Text] [51500002a London THE DAILY TELEGRAPH in English 2 Sep 87 p 4] /7358

**DANGER NEAR BASES**--The Department of Health is to finance a £118,000 study into doctors' claims that children living near atomic weapons bases are suffering from higher than average rates of cancer. The research, which will take three years to complete, follows claims by residents that child cancer rates around the Aldermaston and Burghfield atom bases in Berkshire are up to five times the national average. Several villagers have sold up and moved away because they are frightened of the threat, including a family who lost one child and said they did not want their new baby to die too. The Government has insisted that radiation levels around the bases comply with safety standards and have refused to hold a public inquiry. Higher Levels. Despite its reassurances, there have been repeated claims that there may be a link between the bases and higher levels of childhood cancers, particularly leukaemia. A recent study by doctors in the British Medical Journal found that 41 children under the age of 14 living within a six-mile radius of the Atomic Weapons Establishment, Aldermaston, and the Royal Ordnance Factory, Burghfield, Berks, fell ill with leukaemia in a 14-year period, compared with the national average of 28. [By David Fletcher] [Text] [51500002b London THE DAILY TELEGRAPH in English 3 Sep 87 p 2] /7358

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